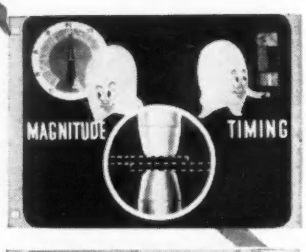
Electrical World

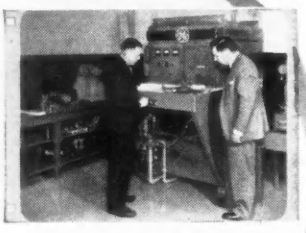
NEWS ISSUE OCTOBER 5, 1946

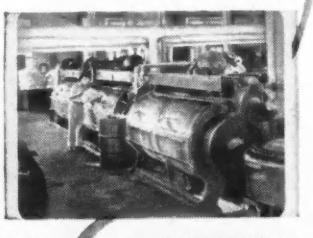
Arthur Prager, President of the Newly Organized Public Service Co. of New Mexico

A McGRAW-HILL PUBLICATION

MORE POWER to AMERICA wins favor fast.... with the help of these 5 selling tools







Put these selling tools to work. You will find them excellent builders of both load and goodwill.

Resistance Welding Program. A 30-min., 16-mm, full-color sound motion picture, "This Is Resistance Welding," takes you inside 15 industrial plants, and shows how resistance welding is reducing costs and increasing production.

Electronic Induction Heating Program. A 35-mm talking slidefilm, "Electronics Broadens the Use of Induction Heating," explains the fundamentals of electronic induction heating and its advantages in brazing, soldering, annealing and hardening, and shows induction heaters in action.

Laundry Electrification Program. A 35-mm, talking slidefilm, "On One Condition," presents a story of a typical laundry owner who climbed on to the profit side of the ledger by making his plant electrically fit. The American Institute of Laundering, and leading laundry-machinery manufacturers, aided in the film's production.

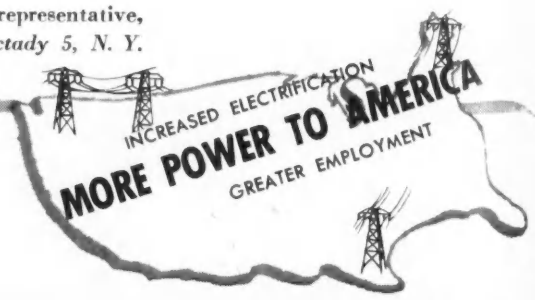
Sewage Treatment Program. A 25-min., 16-mm, full-color sound motion picture, "Clean Waters," portrays to the general public the dangers from pollution of surface waters and shows how modern sewage treatment solves the problem with the proper application of electrical equipment. Produced with the co-operation of U. S. Public Health Service.

Industrial Electronics Training Course. This course is designed to give a thorough understanding of electronics to engineering and production personnel. The course consists of: 12 talking slidefilms; 25 copies each of 12 review booklets, keyed to the 12 slidefilms; a manual to help you present the lectures in the best way.

To encourage widespread use these five programs, booklets, and manuals are made available to you at the cost of producing additional copies.

A sales manual explaining how to best use the film, and a booklet for distribution to power users after showing the film are included in each of the above programs.

For additional information and prices, talk to your local G-E representative, or write *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



A DEFINITION—*An organized program for applying, most effectively, the co-ordinated efforts of all interested groups to increase the efficient use of electricity in industry and agriculture, with emphasis on those processes and operations least electrified.*

GENERAL ELECTRIC

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ELECTRICAL WORLD

NEWS ISSUE

VOLUME 126 NUMBER 14

OCTOBER 5, 1946

Line Sabotage Shuts Off Power Briefly in Pittsburgh Suburbs

40-Minute Interruption Occurs When 22-Kv. Line Is Shorted—Residential Use of Power Increases but Rationing Warning Brings Hurried Reduction — Strike No Nearer Settlement

A LIMITED BREAKDOWN of the Duquesne Light Co.'s conservation program and a short outage which cut off service to 18,000 residential users for 40 minutes caused increasing anxiety this week as Pittsburgh's power strike entered its ninth day.

Tuesday night, as the strike ended its eighth day, unknown persons caused an outage in the Clairton-Wilson area by throwing a rope over a 22-kv. system feeder, bringing the wires together. Service, restored by supervisors, was off from 10:27 until 11:07 P. M., company officials said. They described the action as sabotage and asserted that it had to be "pretty expertly done."

Increase in the residential consumption, plus the return to operation of some commercial load, strained the company's resources Monday afternoon and evening. Vigorous renewal of the conservation campaign brought Tuesday's evening peak down 7,000 kw. from the 238,000-kw. level it reached Monday night. An emergency announcement, indicating that it might be necessary to cut load in staggered areas if conservation were not practiced to the full, helped restore effectiveness of the conservation drive, company officials said.

Meanwhile, negotiations to end the strike continued at the same night and day pace at which they were conducted for about a month before the strike. Two new federal conciliators were on the scene, but, as this issue of ELECTRICAL WORLD went to press, had not been able to bring any agreement out of the conferences. Pittsburgh's Mayor David L. Lawrence, who conducted negotiations before the strike and for a short time after dissolution of the anti-strike injunction he obtained, was out of the bargaining, after a vitriolic blast against the Duquesne union's leadership, which he termed "dishonest."

Some observers believed that only pressure by organized labor forces upon the Duquesne workers, and particularly their president, George Mueller, could bring any solution. Leaders of organized labor in the Pittsburgh district had pretty well deserted Mueller and his independent union by the end of the strike's first week, but rank and file support for the strikers was still to be found without difficulty.

A. F. L. street car and bus operators, for instance, remained on strike refusing to cross Duquesne picket lines, despite assertions from their leaders that they should return to work. A

THE HERO—Striking employees of Duquesne Light Co. carry their union president on their shoulders in triumph after Pittsburgh officials, who asked for an injunction to end the strike, reversed themselves and had it dismissed

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national official of the A. F. L. union of common carrier operators was due in Pittsburgh Wednesday to attempt an inter-union settlement which would allow the restoration of public transportation, at a standstill since the fourth day of the strike.

Pittsburgh hotel workers remained on strike Wednesday.

One city official described labor's position as "untenable." Its leaders were vigorously on record as having dropped support for Mueller and his union when the injunction was dissolved on the strike's third day, it was pointed out, but rank and file acquiescence to the Duquesne strike, if not active support, continued.

The Duquesne union voted, September 28, to reject the company's offer which included a 5 percent wage increase and a liberalized pension plan. President Mueller told reporters, September 26, that the offer had been rejected at a September 25 meeting of the union before the injunction was dissolved. At the time, it was probable that the offer had not been voted upon.

Union Against Arbitration

Its offer rejected, the company withdrew it and offered arbitration again. This the union had refused several times earlier, with Mueller asserting that his membership was more than ever against arbitration because the arbitration of the February dispute, which also resulted in a strike, had proved they could not get anything through arbitration. The February settlement resulted in across-the-board wage increases of 18 cents hourly, in some cases even more than was approved by the National Wage Stabilization Board.

Duquesne Light's steam heating affiliate, with one plant serving 300 downtown buildings, including offices, hotels, theaters, and the City-County building, expected to halt service October 2 as a result of dwindling coal supplies and its inability to get additional coal past picket lines.

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Franchise Fee Raised

The raising of Portland General Electric Co.'s franchise fee in Salem, Ore., from 2 to 3 percent of gross earnings has been approved by the city council. The ordinance will give the city about $10,000 per year additional revenue.

According to council spokesmen, the increase was granted virtually at the request of P.G.E. officials, who wished to make uniform the rates paid in all cities in the company's system. A franchise, written in the 1870's, has been in effect in Salem until the present.

Duquesne Light Output Stands Up Well Despite Long Strike

Supervisory Personnel and Interconnections Supply Enough Power for City's Reduced Demand—Utility President Praises Men on the Job—Some Stations Still Getting Coal by Barge

AFTER six and one-half days of strike-bound operation, the Duquesne Light Co. carried an evening peak of 238,000 kw., between 8 and 9 p. m. Monday night, a figure 49 percent of normal at that hour, company officials said.

The next morning, as the strike entered its eighth day, the load was 196,000 kw. at 10 a. m., substantially under the 320,000 kw. load at 10 a. m. one week previously, half an hour after the strike started, but only 2,000 kw. below the 10 a. m. load recorded six days previously, after the strike had been in effect for 24 hours and Duquesne's curtailment program was completely in effect.

Throughout Monday, seventh day of the strike, Duquesne was carrying loads equal to or greater than anything it had carried from the third day onward, and not too greatly below those it carried on the second day of the strike. Daylight load figures for Tuesday morning showed a similar pattern through 10 a. m.

Load figures, as reported by the company, were being met with the company's own generation plus energy receipts from interconnections, all of which remained in service early the eighth day. At 9 a. m. Tuesday, with the strike a full week old, the company's load was 36 percent of that it had carried at a comparable hour two weeks previously. Twelve hours earlier, it had carried a load 49 percent of normal. At its lowest point, system load sank to 31 percent of normal.

Interconnections of Aid to City

The company's ability to maintain service to this extent after seven days of strike-bound operation, and the non-interruption of its interconnections kept the city from going completely dark.

President Pressly H. McCance, in a radio address Sunday, voiced high praise for the limited operating forces keeping the system in operation. Primarily, these are supervisory personnel, although a few operating employees are included. Not a man who stayed in the plants has left since the strike began, company officials asserted as the eighth day began. All were working four hours on and four hours off. Peace officers were preventing any attempts by pickets to disrupt movement of food into the plants, it was learned, and while no additional forces had been brought into the plants for relief crews, it was anticipated that those who stayed in will be able to continue working indefinitely. Company officials said McCance's speech praising the plant operators was followed by considerable evidences of public approbation of their efforts, including newspaper praise, offers of help, etc.

As the strike began its eighth day, coal supplies sufficient for a minimum of seven to ten more days' operation at then existing generating levels were reported by company officials. Demand was down somewhat as a result of a hotel strike.

Plants Get Coal by Water

A company official disclosed that while trucks hauling coal into its Phillips station had been halted by pickets, supplies were moving into the other three by barge. Coal moved into and ashes moved out of Colfax, Reed and Brunot Island plants without difficulty, it was learned.

Some of Monday's load increase over earlier days they attributed to the necessity, after seven days, of washing and ironing by housewives who had put it off as long as possible. In addition, they said, some small commercial and industrial consumers, irritated by a week's shutdown, were resuming limited operations. Relatively little of this was reported, company officials said, but such as there was of it helped boost the load Monday.

Hourly load figures in thousands of kilowatts for daylight hours of third, fourth, fifth, sixth, seventh and eighth days of the strike, Thursday through Tuesday, follow:

Time	Thurs.	Fri.	Sat.	Sun.	Mon.	Tues.
7 A.M.	115	130	108	90	107	115
8	145	155	115	98	140	144
9	165	172	133	109	170	170
10	165	181	145	118	188	196
11	169	190	151	123	190	201
Noon	159	180	150	119	178	184
1 P.M.	166	180	148	121	181	187
2	162	181	143	125	184	189
3		172	137	126	183	186
4		165	130	136	181	185
5		162	137		174	169
6	138	152	140		195	183
7	156	162	154		227	216
8	191	195	192		229	213
9	194	199	191		214	207
10						196

Public Relations Emphasized at Indiana Electric Meeting

Joseph Bevis, Opinion Research Corp., Tells State Group That Industry Has Failed to Inform Public of Reductions in Cost of Power—NEMA Officer Stresses Interdependence

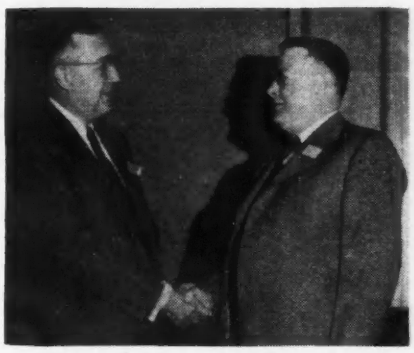
OPINIONS of electric company operations, both in public and in employee relations, depend as much on making information available as on low rates, good service, and good working conditions, the Indiana Electric Association was told at its annual meeting, September 25-27, at French Lick. In addition to performing its functions well, the electric companies must find a way to make the public aware of their actions and their good intentions if they are to gain credit for them.

Arnold Hogan, Indiana and Michigan Electric Co., president of the Association, said, in opening the meeting, that the utilities cannot rest on the record but that continued progress in the industry must be built on a continued demonstration of benefits. Farm electrification and the program of Indiana utilities to help demonstrate proper uses of electric power on the farm received major attention in his report.

Joseph Bevis, Opinion Research Corp., turned the spotlight on the problem in a summary of its public surveys. The electric industry has not yet fully capitalized on the great progress it has made in reducing the cost of electricity and three-fifths of the people nationally have no awareness of any reduction in the last 15 years. One out of five persons nationally thinks rates are higher now than they were several years ago.

PROBER OF PUBLIC OPINION—Joseph Bevis, Opinion Research Corp., telling members of the Indiana Electric Association that surveys show that the public is unaware of the good work they have been doing in reducing the cost of electricity

Stressing interdependence of all segments of the electrical industry, W. C. Johnson, vice-president, National Electrical Manufacturers Association and Allis-Chalmers Manufacturing Co., asked for the uniting into a giant sales force to talk, think, and sell electrical living. He said that nowhere in all industry is there the spirit of good will and cooperation that exists between equipment manufacturers and utilities as their customers.



CONGRATULATIONS—Arnold Hogan, left, Indiana & Michigan Electric Co., retiring president of the Indiana Electric Association, congratulates his successor, Dan C. Hess, Indianapolis Power & Light Co.

NEMA's program for farm electrification is "to rectify the paradoxical situation that despite a record increase in the number of electrified farms, the amount of electrical equipment used by farmers is still extremely low," said Johnson.

Edison Electric Institute's aim is also to complete the electrification job, said its president, Grover Neff, president, Wisconsin Power & Light Co. He appealed to all utility operators to approach the local REA people in a friendly and cooperative spirit. Their systems are operating in adjacent areas, and there are many opportunities to be helpful, he concluded.

Trends in personnel and industrial relations were reviewed by Lee H. Hill, publisher, ELECTRICAL WORLD. Employees must be sold on company policies, and employee relations should not be limited to dealing with unions. Attempts at national bargaining, uniformity of contracts, and union participation in management functions were noted as dangerous trends. Management must recognize that changes in the law, while necessary, will not be enough. A large amount of labor relations education is needed also, he said.

MANUFACTURER AND PUBLISHER—W. C. Johnson (left), vice-president of NEMA and of Allis-Chalmers Manufacturing Co., poses with Lee H. Hill, publisher of ELECTRICAL WORLD. Both spoke at the Indiana Electric Association Convention

Telling the electric companies' side of the story at every advisable opportunity is the function of the National Association of Electric Companies, said its president, Purcell L. Smith. Even though action following presentation of testimony before Congressional committees was not always what the companies believed was right, he said, it can still be said that the industry made a net gain each time its case was heard.

Dan C. Hess, Indianapolis Power & Light Co., was elected president for the coming year, and C. K. Graham, Southern Indiana Gas & Electric Co., was elected vice-president. Secretary E. F. Hauser reviewed activities of the association's standing committees.

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Distribution System Sold

The purchase by the Tucson Gas, Electric Light & Power Co. of the electric distribution and service lines owned by the Stonewall Electric Co. in the vicinity of Tucson, Ariz., has been approved by the Arizona Corporation Commission. The facilities, although owned by the Stonewall Co., a New York corporation, have for years been used by the Tucson utility under lease agreement. They are an integral part of the Arizona firm's distribution in the Tucson area. The purchase price was reported to be $65,355.

4 New Mexico Companies Merge; Prager President

Federal Light & Traction Firms United as Public Service Co. of New Mexico—SEC Gives Approval

(See Front Cover)

The merger of four utility companies in New Mexico under the name Public Service Co. of New Mexico has been announced at Albuquerque, headquarters of the new corporation.

Utilities involved are New Mexico Power Co., Santa Fe; Las Vegas Light & Power Co.; Deming Ice & Electric Co.; and Albuquerque Gas & Electric Co. All of the companies were subsidiaries of Federal Light & Traction Co., New York.

Announcement of the merger followed approval by the Securities and Exchange Commission. Completion of the merger, including the sale of new stock, is expected within 30 days.

C. H. Nichols, president of Federal Light & Traction Co., has been elected chairman of the board. Arthur Prager, president of the Albuquerque company, will head the new utility. Other officers will be H. A. Person, vice-president; B. L. Wiles, secretary and treasurer; W. E. Johnson, assistant secretary and assistant treasurer; and Ralph Loken, assistant secretary and assistant treasurer.

Mr. Prager, a native of Trinidad, Colo., has been in the utility business since 1907, when he went to work for the Trinidad Electric Transmission, Railway & Gas Co. Since then he has been connected with the Federal Light & Traction Co. system with the exception of the time during World War I when he was in the army.

He was transferred in turn to the Deming (N. M.) Ice & Electric Co. and then to Albuquerque Gas & Electric Co. where he served as auditor for three years. From there he was sent to Springfield, Mo., where he served a three-year period as assistant treasurer of the Springefild Gas & Electric Co. and Springfield Traction Co.

In 1919, he went back to the Albuquerque property as general manager, advancing to the vice-presidency in 1936, and the presidency in 1938.

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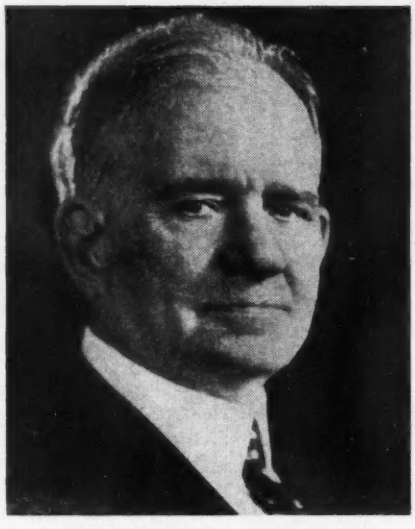
Utility Improving Service

Northwestern Electric Co. crews at Vancouver, Wash., are engaged in a $200,000 expansion program in that city. Work includes the extension of lines and services, 66-kv. oil circuit breakers at the West substation, and the re-routing of some existing lines.



UPHELD COURT'S DIGNITY—President-Judge Harry H. Rowand of the Court of Common Pleas who sentenced George L. Mueller, head of the union of Duquesne Light Co. workers who are out on strike, to a year in jail for contempt of court for defying an injunction forbidding the strike

Union Electric Co. Plans Electrical Living Campaign

An aggressive campaign to interest residents of its service area in electrical living was announced recently by the Union Electric Co. of Missouri to the electric appliance dealers in Greater St. Louis.

The promotion, which will include advertising in newspapers, billboards, car cards, radio spot announcements, and a six-time weekly radio program, will center around an electrical living home erected on the first floor of the company's general office building.

During October, the public may enter a $4,000 essay contest. Prizes will range from a completely equipped kitchen to small traffic appliances. The 50-word essays must be on the topic, "Why I Plan to Live Better Electrically."

Dealer participation in the Home Show will be augmented by displays of all types of electrical appliances rotated so that all appliances distributed in St. Louis will be included in the show. Home economists and residential service representatives will guide visitors through the home and point out all the electrical applications.

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Municipal to Expand

Citizens of Osborne, Kan., have approved a $130,000 bond issue for the enlarging of the municipal plant and the adding of a 1,000-hp. diesel unit.

FPC Conducting Hearing on First Iowa Hydro Plea

Co-op Seeking to Prove Economic Soundness of Project Which Has Strong Opposition from State

Seeking to establish the economic soundness of its proposal to generate electricity by using water diverted from the Cedar River through a special canal into the Mississippi River, the First Iowa Hydro-Electric Cooperative sent its witnesses to the stand Monday as the hearings opened at Davenport, Iowa. Glenn R. Law, examiner for the Federal Power Commission, is conducting the hearing which is the latest in a long series of legal battles between the co-op and the State of Iowa.

The co-op's first application to FPC for a license was denied in January, 1942, and the denial was upheld by the U. S. Circuit Court of Appeals. FPC denied the application on the ground that the Federal Power Act requires a petitioner to comply with all provisions of state law before obtaining a federal license.

Last April, the United States Supreme Court disagreed with this interpretation of the law and remanded the application to FPC for further consideration (ELECTRICAL WORLD, May 4, Page 4).

State's Petition Denied

Last week, the Federal Power Commission denied a petition of the State of Iowa to reopen the question of federal jurisdiction.

The project, whose cost is estimated at $22,127,000, involves the erection of a large generating plant on the canal at the point where the diverted water would drop 100 ft. into the Mississippi, near Muscatine, Iowa.

As the hearing opened, Attorney Neill Garrett, Des Moines, special assistant to Iowa Attorney General John M. Rankin, stated that the state will contend that the proposed dam and canal are impractical from the standpoint of both engineering and economics and that the plant is not needed as the area is already adequately served by other electric companies.

D. W. Robinson, Columbia, S. C., formerly general counsel for FPC and now representing First Iowa, called Albert F. Sperry, Hubbard Engineering Co., Chicago, who testified that the co-op could build a plant and sell energy either as a separate hydro project or in conjunction with a steam plant at less cost than a steam plant alone. John Connolly, Des Moines attorney, testified that under Iowa's taxation laws the co-op would be exempt from taxation.

Utility Presidents Attack BPA's Expansion Plans

Private Firms in Montana, Utah, and Idaho Object to Extensions Into Area by Government Agency

C. J. Strike, president of the Idaho Power Co., Boise, charged last week that the recent Interior Department order for the Bonneville Power Administration to start action in marketing federally generated electricity in southern Idaho is an attempt "to thwart President Truman's request for government agencies to curtail needless expenditures."

Frank H. Bird, president of the Montana Power Co., and George M. Gadsby, president of Utah Power & Light Co., joined with Strike to declare that there had been no shortage of power even during the peak loads of the war years in areas served by the privately owned companies in Utah, Idaho and Montana.

"There three private electric companies already have formulated plans for additional sources of power which contemplate the utilization of water in conjunction with Reclamation projects for hydroelectric generation, and the operation of steam-electric generating stations to burn local coal," their statement said.

The utility officials contended their firms are capable of meeting any foreseeable demand for electric power.

Strike claimed that "in spite of the fact we are substantial contributors to federal, state and local taxes, our electric rates are among the lowest in the nation." He added that his company saw no need for the government to create further indebtedness by spending millions of dollars to "invade" Idaho with a tax-exempt power system.

Public Power's Story

On the other side of the public-private power conflict was Sen. Glen H. Taylor, Idaho Democrat, who commented that "it is high time Idaho received some benefits from the federal government's billion dollar Columbia power program."

The senator continued: "Power revenues are doing wonders for Reclamation projects in the state of Washington. We ought to give a long look at the possibilities for further development of these benefits for Idaho projects. The big transmission system delivering power from dams to markets in Oregon and Washington has brought tremendous top-paying industries to those states. It's Idaho's turn now."

Meanwhile, C. Girard Davidson, Assistant Secretary of Interior, visiting Boise, outlined plans for BPA expansion.

He reported that the administration was instructed "to include in its 1948 budget estimates of funds required for survey of transmission lines, market studies, and development work in that section of the state."

Davidson said that Secretary of Interior J. A. Krug's action "followed closely a number of requests for early and adequate power supplies to develop Idaho phosphate and other resources."

The assistant secretary said Krug has asked Paul Raver, BPA administrator, "to apply the principle of a uniform power rate throughout its marketing area, including the Snake basin."

He added that the Department of Interior had previously asked the Reclamation Bureau and BPA to make a joint study of southern Idaho "to provide for the fullest development of the Upper Snake basin through the construction of transmission lines connecting these plants to load centers and also interconnecting Idaho with the Columbia River power system.

"It is planned that the Bureau of Reclamation will be reimbursed for all power delivered on a basis which will continue to assist in the repayment of irrigation costs not carried by water users. Thus the Bonneville Power Administration will add means for lower cost power development of Idaho resources."

Edison Electric Institute Farm Electrification Policy

In the interest of best serving the public, it is the policy of the Edison Electric Institute, working through its member companies:

1. To promote the extension of electric lines as rapidly as possible, in an efficient manner, to help make electric service available to the remaining one-fourth of the farms of this country that are still beyond existing lines, and to increase the number of users of service along existing lines.

2. To foster cooperation between managers of operating companies and officials of rural cooperatives on all matters of mutual interest, to reach better understandings on all questions that naturally arise when two separate distribution systems operate in adjacent territory.

3. To foster the idea that extensions of lines to be built should be constructed in each instance by that operating company, REA cooperative, or other agency that is in the best position to build the extension most economically.

4. To advocate that operating companies provide facilities so that cooperatives can buy power in adequate amounts at fair prices, thereby making unnecessary and undefensible the use of federal money by REA cooperatives or other government agencies for generation or transmission equipment that would largely duplicate existing installations.

5. To foster research and development in rural power lines to improve the quality and reliability of rural electric service.

6. To promote within its membership, through the investigations and studies of its farm committees, new developments and ideas to increase the usefulness of electricity to the farmer.

7. To join with other national groups interested in farm electrification in the support of research work, preferably through agricultural colleges and experiment stations, in the development and adaptation of improved equipment for farm operation; to cooperate with and stimulate manufacturers in developing and manufacturing such equipment; and to participate in the dissemination to farmers, through agencies such as the Agricultural Extension Service, of factual information concerning such new developments.

Benton P.U.D. Takes Over

Benton County, Wash., Public Utility District No. 1 took over the Pacific Power and Light Co.'s distribution properties in Benton County, September 12.

County attorneys presented a check for $1,283,171 to Federal Judge Sam Driver at Spokane for the private power firm's facilities in the Prosser, Benton City, and Kennewick areas. The facilities had been condemned by the P.U.D., but the valuation set on the properties in the condemnation suit was more than twice the top figure in $540,000 to $590,000 appraisals made by P.U.D. experts.

30,000-Kw. Unit for Dallas

Dallas Power & Light Co. will spend $3,270,000 to add a 30,000-kw. unit at its Mountain Creek plant. The present capacity of the plant is 61,250 kw.

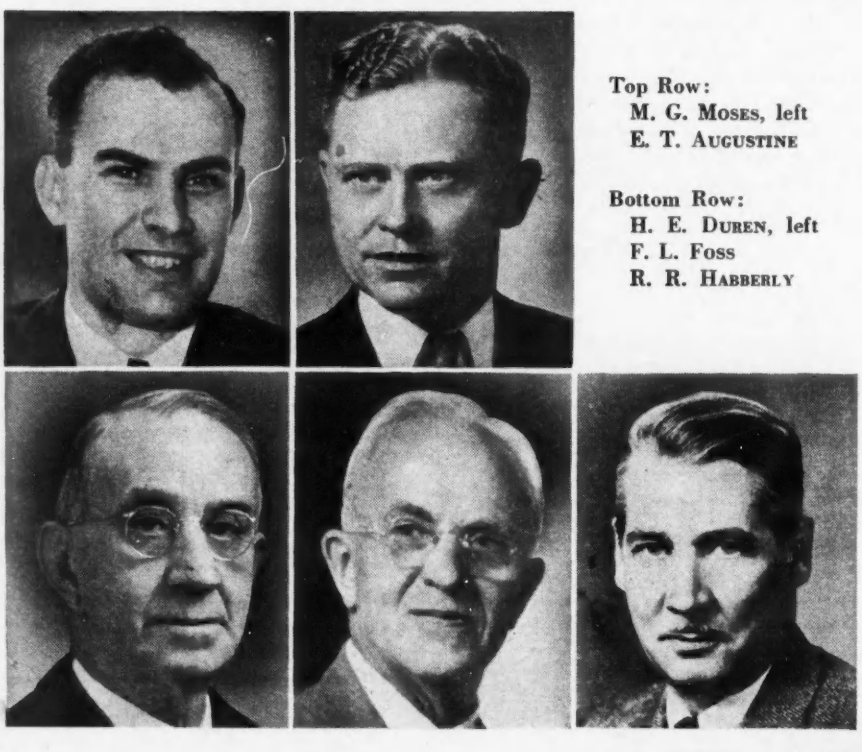
NEWS ABOUT PEOPLE

Western Massachusetts Co. Announces Promotions

Western Massachusetts Electric Co., Springfield, through President Howard J. Cadwell, announces the following appointments and the resignation of Harry E. Duren, vice-president with headquarters at Greenfield for many years. F. Leslie Foss has been named manager of the northern division, including the Greenfield, Amherst and Easthampton areas. He joined the organization in 1909, and for many years was active in rural electrification work. In 1943 he was appointed assistant to the president. Robert R. Habberly, assistant general superintendent, has been appointed director of economics, and will assist the president in all matters pertaining to construction and operation. Mr. Habberly joined the utility in 1930, and has had an extended experience in the transmission and distribution fields, with important outside engineering society connections, both local and national.

Edward T. Augustine, assistant chief engineer, Springfield, has been named assistant general superintendent, Western Massachusetts Electric Co. He entered the company's service in 1929 as system planning engineer, and was district engineer at Pittsfield from 1932 to 1944, attaining his recent post at that time. Joseph P. McMahon, formerly supervisor of customers' service at Springfield and since 1944 assistant real estate and right-of-way agent, has been made real estate and right-of-way agent for the entire system. Marlowe G. Moses, planning engineer, has been appointed assistant chief engineer of the system. He was graduated from the University of Minnesota in 1927, and for a time was employed by the Northwestern Public Service Co. as electrical engineer and by the Northern States Power Co. as assistant manager of system planning. He joined Western Massachusetts in 1945, following two years at Harvard University as special research associate on military research in radar countermeasures.

Mr. Duren was graduated from the University of Maine in 1902, after which he was employed by the General Electric Co. at Schenectady and San Francisco, largely in commercial capacities. In 1915 he was power engineer with the Newburyport (Mass.) Gas & Electric Co., and in 1916 served in this capacity for the Turners Falls Power & Electric Co. For a time he was commercial engineer for the Fall River (Mass.) Electric Light Co. Since 1921 he has been manager of the then Greenfield company, vice-president and its president, and then vice-president of the Western company. He is a past-president of the New England division of the former NELA, and is widely known in the northeastern utility field for his work in public relations, commercial development and cooperative activities in connection with other branches of the industry.



Top Row:
M. G. Moses, left
E. T. Augustine

Bottom Row:
H. E. Duren, left
F. L. Foss
R. R. Habberly

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Anaconda Wire Assigns New Duties to Mullally, Porter

Announcement has been made by the Anaconda Wire & Cable Co., New York, of the appointment of Joseph W. Mullally to the position of manager of utility sales and of C. H. Porter as manager of industrial, wholesaler and contractor sales.

J. W. Mullally

Mr. Mullally was formerly manager of the company's bare and weatherproof sales and prior to that served as the company's district manager at Pittsburgh. During the war, on loan to the Government, he served for three years as chief of the wire mill branch of the copper division of the War Production Board. In his new position Mr. Mullally will supervise and coordinate sales of all the company's products to power and light systems, publicly and privately owned, and to the railroad and communication industries.

Mr. Porter was formerly eastern sales manager and prior to that district manager of the company's Cincinnati territory. In his new capacity, Mr. Porter

C. H. PORTER

will supervise the sales and servicing of all products and better coordinate relationships between customers, sales and production departments.

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▶C. M. LYTLE, assistant superintendent of the overhead department of the Kansas City Power & Light Co., Kansas City, Mo., is the newly elected chairman of a utilities communication committee organized recently within the Missouri Valley Electric Association. The group includes communication men from utilities in Missouri, Iowa, Kansas, Oklahoma, Nebraska and Illinois and will represent its members in working with the Federal Communications Commission and other interested groups, such as the Radio Technical Planning Board.

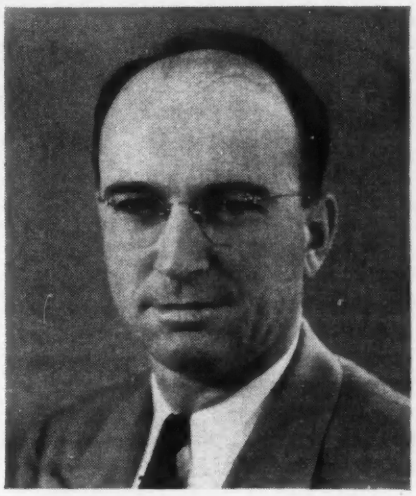
▶GEORGE MORGAN, system engineering, Gulf States Utilities Co., Beaumont, Tex., has severed his connection with that utility to join the Hawaiian Electric Co., Ltd., in Honolulu. Mr. Morgan, who was an electrical engineer with Gulf States, has assumed similar duties with the Hawaiian company. He became identified with the Beaumont utility in 1940 after doing engineering work on the company's facilities in Texas and Louisiana, while working with Stone & Webster Engineering Corp. Mr. Morgan devoted considerable time to engineering activities and was recently elected chairman of the Beaumont chapter of A.I.E.E.

▶GEORGE R. ATHERTON has been elected president of the Springfield Boiler Co., Springfield, Ill., to succeed Owsley M. Brown, retired. Mr. Atherton is widely known in the heating and air-conditioning industry through a long connection with the American Radiator-Standard Sanitary sales organization.

California Utility Elects Two Vice-Presidents

Fred Oldendorf, Jr., and Gilbert C. Delvaille have been elected vice-presidents of the California Electric Power Co., Riverside, Calif.

Mr. Oldendorf began work with the company in 1929 as a clerk, being transferred to the commercial department in 1931 and the executive department in 1942. He became assistant to the



F. OLDENDORF, JR.

president in 1944, a position he will continue to hold as vice-president.

Mr. Delvaille, who has been with the company since 1926, has served as commercial clerk, statistician, rate engineer and executive assistant. He will combine his duties as executive assistant with those of his new position.

G. C. DELVAILLE

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▶G. H. PREACHER, lighting engineer, has returned to the South Carolina Electric & Gas Co., which is planning expansion of its lighting development department. Mr. Preacher was sent to Honolulu as government lighting engineer for the Hawaiian Electric Co., where he developed a special blackout lamp. C. C. LAWSON, who formerly engaged in utility sales promotion work, is now director of the company's new retail dealers department. ELLEN MINER, formerly with the Washington (D.C.) Gas Light Co. before she joined the WAVES, has been named home economics director.

▶THOMAS W. MARTIN, president of the Alabama Power Co., has been appointed Alabama chairman for the Committee for Economic Development.

▶MURRAY F. SKINKER, formerly connected with the Federal Telephone & Radio Corp., East Newark, N. J., has opened his own offices as personnel and research consultant in New York. Dr. Skinker has spent 20 years in administration, engineering and research work and 15 years selecting and training men.

▶JOHN C. MORRIS has been appointed superintendent of the resin and insulation materials division of the General Electric Co.'s chemical department, Pittsfield, (Mass.) works. He was formerly assistant superintendent, and since 1931 has been identified with the mica section in various capacities. He joined the company in 1938 and for a time was employed in the payroll and then in the induction motor cost sections.

▶CURTIS E. CALDER, chairman of the board, Electric Bond & Share Co., has been named chairman of the New York convention committee of the 33d National Foreign Trade Convention to be held November 11-13 in New York at the Waldorf-Astoria Hotel.

▶E. L. HAFF, connected with the Coffeyville, Kans., municipal plant since 1929, recently took over the duties of president of the Kansas Association of Municipal Utilities. He succeeded O. K. Stewart, formerly water and light commissioner of Pratt, Kans. Mr. Haff began working for the Jetmore municipal utilities in 1915 and served with other municipal plants until his assignment at Coffeyville in 1929.

OBITUARY

▶ALBERT I. WOODHOUSE, who was associated with L. N. Nunn, one of the pioneers in the electric utility field in Utah, died recently in Los Angeles, Calif., following a major operation. Mr. Woodhouse founded the Dixie Power Co. and became manager of Southern Utah Power Co. when that

company purchased the Dixie properties in 1929. While associated with Mr. Nunn, he did much to develop long distance transmission in Utah. Going to California in 1931, he became the head of the Clyde Henry enterprises, operators of several small plants in Washington and Oregon. Poor health forced his retirement from that position several years ago.

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Sylvester B. Way

Sylvester B. Way, chairman of the board of the Wisconsin Electric Power Co., whose death was announced in the September 28 issue of ELECTRICAL WORLD, page 126, had been active head of the company and its predecessor, the Milwaukee Electric Railway & Light

Co., for 25 years, when in 1945 he was elected chairman. At the time of his death, he was also chairman of the board of the Milwaukee Electric Railway & Transport Co., Wisconsin Gas & Electric Co. and the Wisconsin Michigan Power Co.

Mr. Way received his technical education at Drexel Institute, Philadelphia, and after graduation he began his business career in the employ of the Electric Storage Battery Co. of Philadelphia. He left that organization in 1898 to become electrical superintendent with one of the early electric light and power companies in St. Louis, the Union Electric Light & Power Co. He remained in the service of the Union company until 1911, when he went to Milwaukee as assistant general manager of the Milwaukee Electric Railway & Light Co. The next year he was made vice-president and assistant general manager and in 1914 he became general manager. His elevation to the presidency came in 1925. Mr. Way was the patentee of various devices employed in the construction and maintenance of electric distributing lines.

FCC Relaxes Restrictions on Radio Use by Utilities

Recognizing the need of a broader application of radio by utilities, the Federal Communications Commission has established new frequency allocations and new rules and regulations for this class of station. Effective September 9, the new rules are designed for more effective utilization of radiotelephony.

Up to now, power utilities have been restricted in their use of radio to emergencies that jeopardize life, public safety, or important property. While unnecessary radio conversation is still banned, fixed and mobile stations can now be employed for issuing orders and instructions relative to production, transmission, and distribution. This will permit the speeding of trouble calls and repair crews and otherwise expand the use of radio to maintain and improve service.

Utility stations will share the 72-76 and 152-162 megacycle bands for systems operating within a radius of approximately 20 miles, and the 30-40 band where service is to more than one municipality or a metropolitan area.

Licensees of existing special emergency radio stations, who may be eligible for authorizations in the Utility Radio Service, will be permitted to change station classification to one of those in the new service, and will be permitted to continue, temporarily, operation on their presently assigned frequencies. This will afford them the added advantages of the broader scope of service without requiring changes in radio equipment.

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Underwriters Approve R-C Aluminum Conductor

Underwriters' Laboratories, Inc., has notified its Electrical Council and manufacturers of building wires that Inspected R-C wire labels may be used on aluminum conductors No. 12 and larger.

The approval at present is on a temporary expediency basis because of the shortage of copper. Time and experience will determine future action.

R-C is interpreted to cover all materials which meet pre-war rubber requirements. Buna compounds and neoprene are among these.

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25-Year Franchise Granted

The Maricopa County Board of Supervisors has approved a county-wide public electricity and gas service franchise for the Central Arizona Light & Power Co. The 25-year franchise replaces one formerly held by the company which covered only part of the county.

MEETINGS

Missouri Valley Electric Association—Rural Roundtable Discussion, Hotel Continental, Kansas City, Mo., October 29; Fall sales and rural conference, Hotel Continental, Kansas City, Mo., October 30-31. I. D. Pettegrew, director, 1004 Baltimore Ave., Kansas City 6, Mo.

Canadian Electrical Manufacturers Association—Annual meeting, General Brock Hotel, Niagara Falls, Ontario, October 10-11. Roy D.Kerby, general manager, 204 Richmond St. West, Toronto 1, Canada.

Previously Listed

Edison Electric Institute—Prime movers committee, Hotel Roosevelt, New Orleans, La., October 6-7; transmission and distribution committee, Cavalier Hotel, Virginia Beach, Va., October 7-8; accident prevention committee, Hotel Statler, Buffalo, N. Y., October 31-November 1.

American Institute of Electrical Engineers—Great Lakes District, Claypool Hotel, Indianapolis, Ind., October 9-11.

International Association of Electrical Inspectors—Southern Section, George Vanderbilt Hotel, Asheville, N. C., October 14-16; Western Section, Gibson Hotel, Cincinnati, Ohio, October 21-23; Eastern Section, Mark Twain Hotel, Elmira, N. Y., October 28-30.

National Electrical Contractors Association—Annual meeting, Ritz Carlton, Atlantic City, N. J., October 14-18.

Electrochemical Society—Fall meeting, Royal York Hotel, Toronto, Canada, October 16-19.

Southeastern Electric Exchange—Accounting Section, Fort Sumter Hotel, Charleston, S. C., October 17-18; Commercial Section, Atlanta Biltmore Hotel, Atlanta, Ga., November 6-9.

American Welding Society—Annual meeting, New York, N. Y., October 24 and Atlantic City, N. J., November 17-22.

ASME-AIME Joint Fuels Conference — Bellevue-Stratford Hotel, Philadelphia, Pa., October 24-25.

Pennsylvania Electric Association—Electrical equipment committee, Lord Baltimore Hotel, Baltimore, Md., October 24-25; Transmission and distribution committee, Abraham Lincoln Hotel, Reading, Pa., October 24-25; Meter committee, Benjamin Franklin Hotel, Philadelphia, Pa., November 7-8; Systems operation committee, Skytop Lodge, Pa., November 7-8.

RLM Standards Institute—Annual meeting, Brighton Hotel, Atlantic City, N. J., October 28.

National Electrical Manufacturers Association—Annual meeting, Traymore Hotel, Atlantic City, N. J., October 28-November 1.

National Farm Electrification Conference—Sherman Hotel, Chicago, Ill., November 7-8.

National Research Council—Conference on Electrical Insulation, Johns-Hopkins University Baltimore, Md., November 7-9.

National Association of Railroad and Utilities Commissioners—Annual meeting, New Orleans, La., November 12-15.

New Jersey Utilities Association—Annual meeting, Seaview Country Club, Absecon, N. J., November 22-23.

National Exposition of Power and Mechanical Engineering—Grand Central Palace, New York, N. Y., December 2-7.

PART 3 IN A SERIES ABOUT *Quality Craftsmanship* AT LINE MATERIAL

Tap Changer Construction of

L-M Round-Wound Transformers

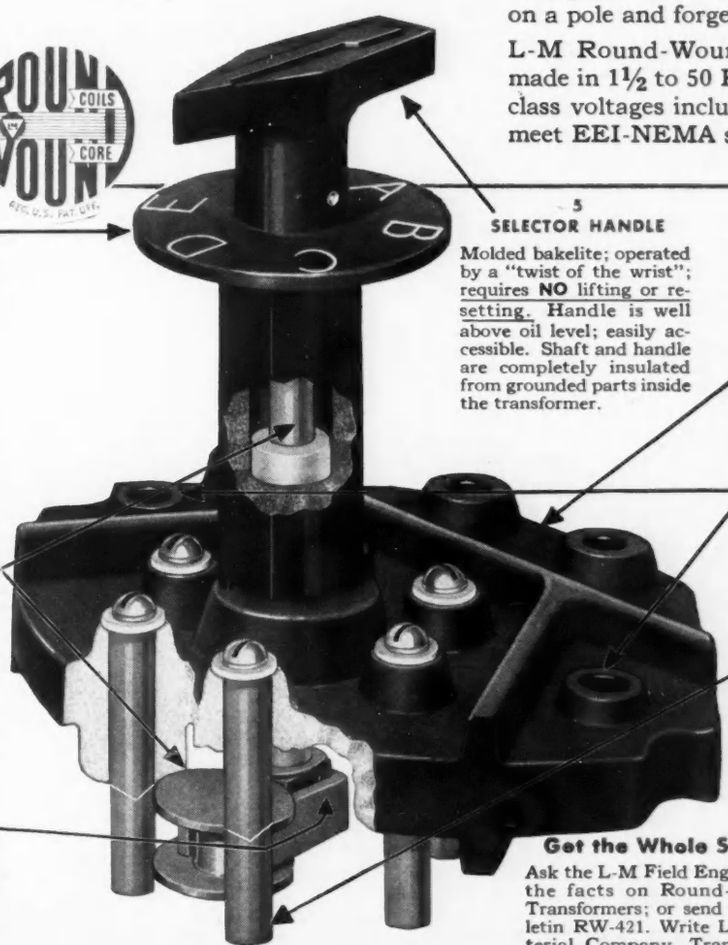
A mere "twist of the wrist" changes contacts with positive snap-action on this convenient, combination tap changer and terminal board.

The "Quality Craftsmanship" standards under which L-M Round-Wound Transformers are built may be verified down to the last detail of their construction.

For example, check the features of the L-M tap changer. It is typical of the kind of design and construction that goes into L-M Round-Wound Transformers. It is another reason why you can "hang L-M Round-Wound Transformers on a pole and forget 'em."

L-M Round-Wound Transformers are made in 1½ to 50 Kva, in all distribution class voltages including 14,400 volts, and meet EEI-NEMA standards.

ROUND COILS WOUND CORE REG. U.S. PAT. OFF.



1 INDICATOR PLATE

Bakelite, molded in one piece with shaft housing, which is notched to porcelain base to prevent turning of plate. Plate is well above oil level; large white letters are easily seen.

2 BRASS ROLLER

Revolves from one set of contact posts to the next when the handle is turned. The spring-actuated roller provides a high pressure wiping action as it snaps to each contact.

3 SHAFT

Accurately machined shaft transmits torque from handle to roller arm. Fibre shaft extension raises handle above oil level and insulates it from grounded parts inside the transformer.

4 STEEL SPRING

Acts on the brass roller, providing positive pressure contact and snap-action with the turn of the selector handle.

5 SELECTOR HANDLE

Molded bakelite; operated by a "twist of the wrist"; requires **NO** lifting or resetting. Handle is well above oil level; easily accessible. Shaft and handle are completely insulated from grounded parts inside the transformer.

6 PORCELAIN BASE

High density porcelain molded under high pressure by a new process into a single piece. Barriers between live parts and between live parts and ground afford adequate creepage distances at all points. High Dielectric and mechanical strength and close dimensional tolerances are characteristic.

7 PRIMARY LEADS

May be terminated on the tap changer base. Barriers assure complete safety from flashover. Thus, tap changer and terminal board are combined into one assembly.

8 BRASS CONTACT POSTS

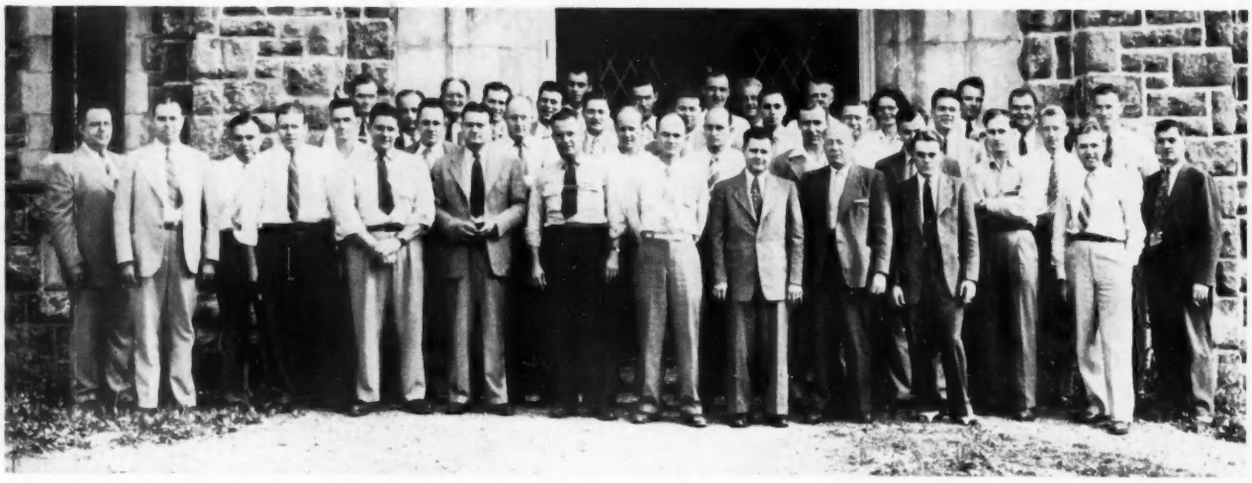
A finished machined surface for positive contact. Square heads engage square recesses in the porcelain base to keep contact posts from turning in operation.

Get the Whole Story

Ask the L-M Field Engineer for the facts on Round-Wound Transformers; or send for Bulletin RW-421. Write Line Material Company, Transformer Division, Zanesville, Ohio.

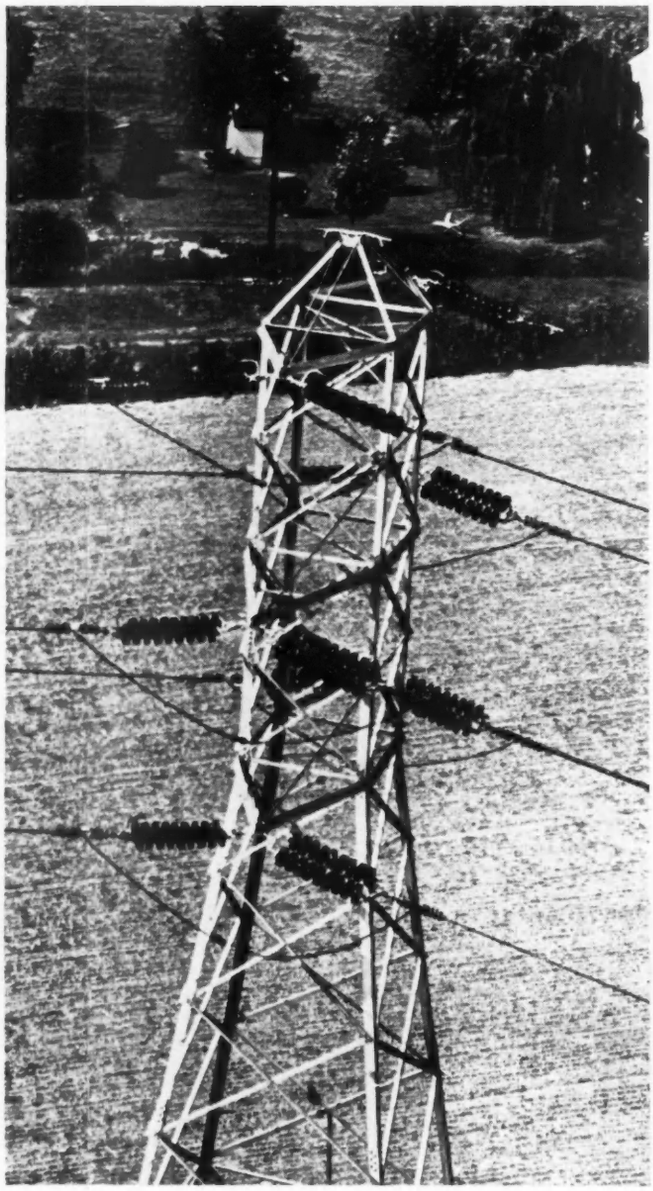
LINE MATERIAL
TRANSFORMERS

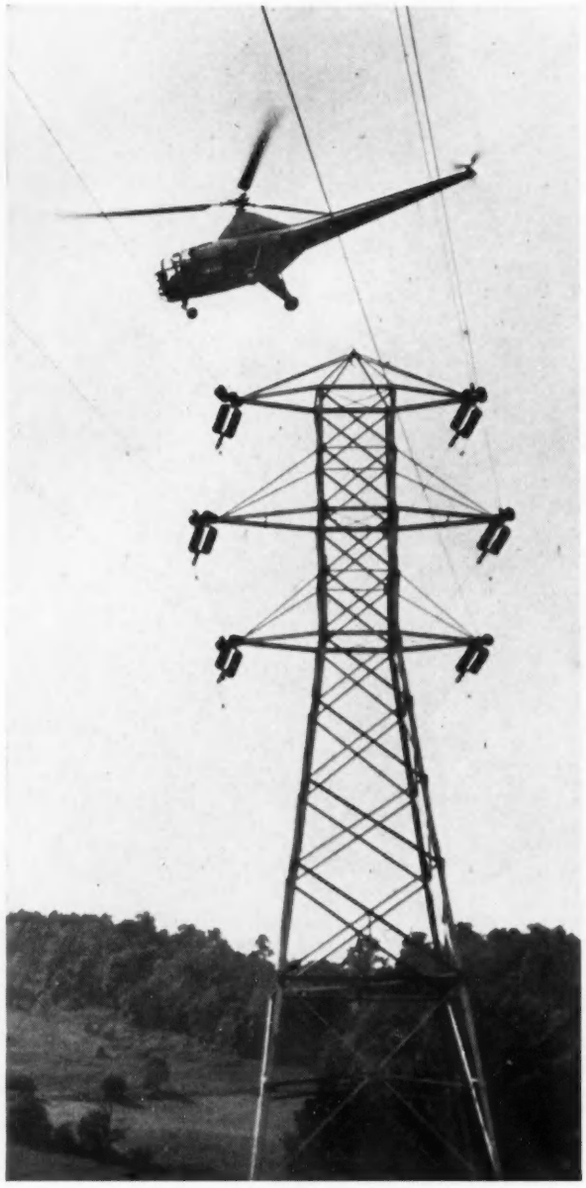
L-M DISTRIBUTION EQUIPMENT INCLUDES: Distribution Transformers • Fuse Cutouts and Fuse Links • Lightning Arresters • Oil Switches • Pole Line Hardware • Line Construction Specialties • Underground Equipment • Fibre Conduit • Street and Airport Lighting Equipment • Wired Radio Control Equipment • Capacitors



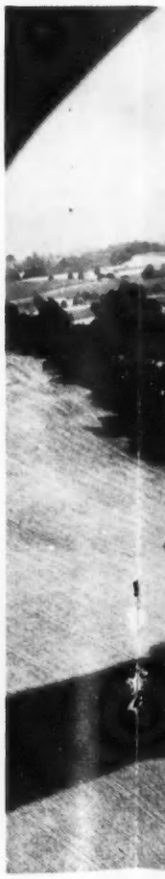
STUDENTS OF FARM ELECTRIFICATION—This group of engineers of Virginia utilities and cooperatives recently took a six-day course on farm electrical equipment at Virginia Polytechnic Institute (see right)

A CLASS IN B
chicken brooders



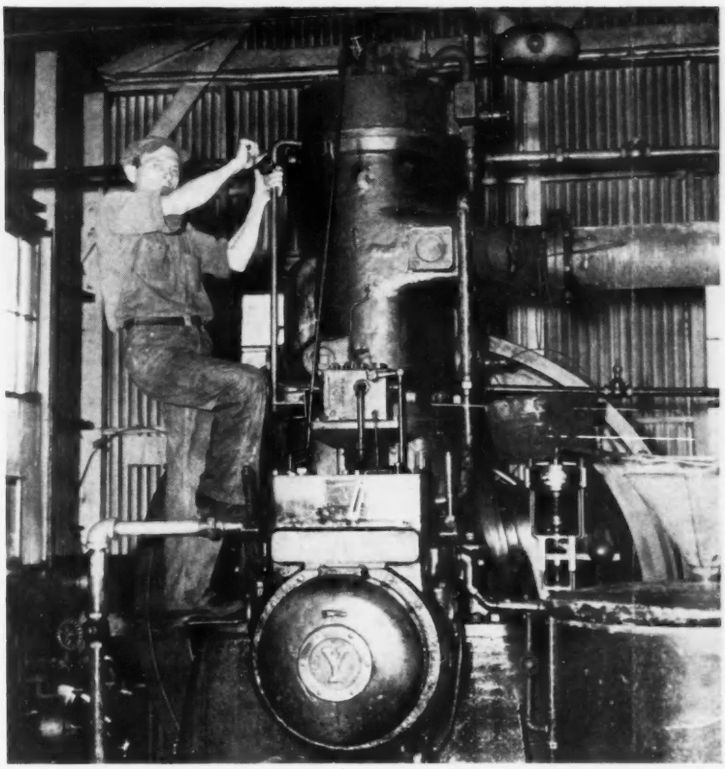


HELICOPTER EXPERIMENT—Metropolitan Edison Co., Reading, Pa., recently, as an experiment, used a helicopter to patrol a section of its lines. At left is a view of a transmission tower from the helicopter. At right, a view of . . .

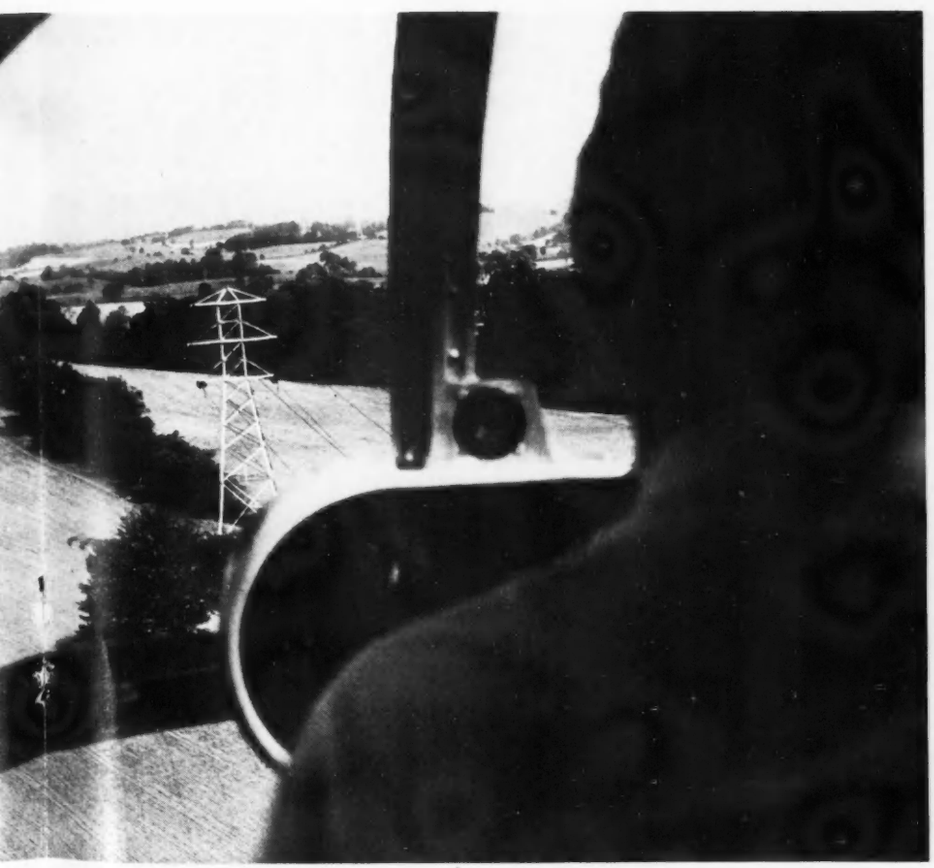


. . . the plane
showing the tr

IN BROODERS—Group studying the construction and operation of brooders at Virginia Polytechnic course on farm electrical equipment



UNNEEDED—New interconnecting lines of South Carolina Power Co. make this standby diesel at McClellanville, S. C., unnecessary



ne plane taken from the ground during the patrol flight. Above, the view from the cockpit g the transmission line. Several flights were made, two company officials making each trip

THE INDUSTRY *in* *Pictures*

Bat an eye...

IT TAKES NO LONGER TO BREAK AND REMAKE A 161,000-VOLT CIRCUIT

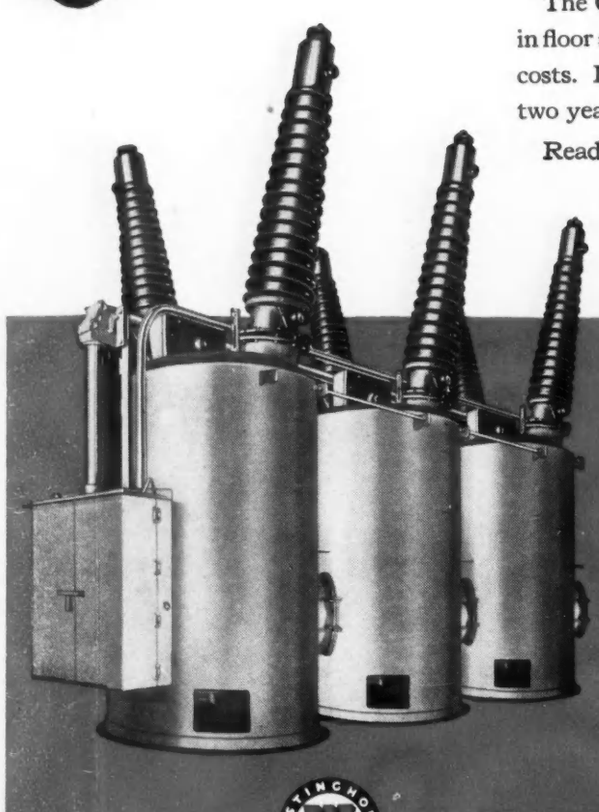
A short-circuit current of 6200 amperes at 161 kv interrupted and reclosed in 20 cycles! Such high-speed operation—with arcing time less than two cycles—means greater system stability and better continuity of service on high-voltage transmission systems.

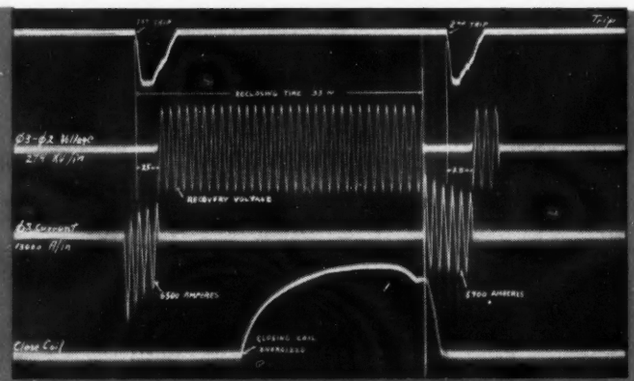
Low arc energy, with Multi-flow "De-ion" Grids, and the high-speed action of the Westinghouse pneumatic mechanism make this type of operation possible. The "De-ion" Grids extinguish arcs quickly by sweeping arc products out of the arc zone with high-speed oil flow.

The GM breaker is smaller and lighter, too, effecting economies in floor space, foundation costs, and in maintenance and operating costs. Its successful operation in service is proved by nearly two years of excellent operating experience.

Read the oscillograms of typical tests made in the Westinghouse High Power Laboratory. Then write for Booklet B-3424 and get the whole story. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

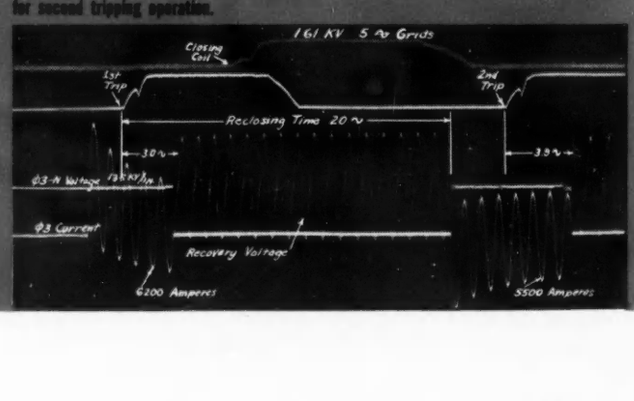
J-60630





Oscillogram of 230-kv, Multi-flow, "De-ion" Grid interruption at 132 kv to ground on 35-cycle reclosing duty. Fault equivalent to 2,500,000-kva, 3-phase, opened twice, with interrupting time less than 3 cycles on each tripping operation.

Oscillogram of 161-kv, 5-cycle, Multi-flow "De-ion" Grid breaker pole unit, opening fault at 88 kv. Equivalent to more than 1,500,000-kva, 3-phase. Reclosing within 20 cycles for second tripping operation.



Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE

SEC RULINGS

The Securities and Exchange Commission recently issued a series of orders affecting electric utility companies.

ELECTRIC BOND & SHARE Co.'s second step designated plan II-A, in company's three-part program for compliance with the geographic integration and corporate simplification provision of the Holding Company Act, has been approved. Attorneys for the SEC filed an application with the Federal District Court in New York for an order enforcing and carrying out provisions of the plan. The initial step, which provided for a cash distribution of $30 a share on the two classes of preferred stock, has already been consummated in accordance with provisions of plan I. Plan II-A provides an additional cash distribution of $70 a share on the two classes of preferred stock, or, in event of certain circumstances, a pro rata distribution of less than $70 a share. Cash in amount of $75,029,600 plus accumulated dividends will be required to make the $70 a share distribution. Funds for the cash distribution will be raised by sale of holdings of common stocks of American Gas & Electric Co. and Pennsylvania Power & Light Co., consisting of 646,985 shares of American Gas & Electric Co. and 1,164,373 shares of Pennsylvania Power & Light common. Plan II-A, which is an amended version of the original plan, contains a provision for an alternative distribution if company finds it inexpedient to carry out the $70 distribution. This would consist of a sum substantially equal to proceeds from sale of the American Gas & Electric and Pennsylvania Power & Light holdings. Should the alternative distribution be effected, plan II-A requires Electric Bond & Share to dispose within one year of its common stock holdings of Birmingham Electric Co. and Carolina Power & Light Co. consisting of 254,045 shares of the former and 423,408 shares of the latter together with any shares of common stocks of American Gas & Electric and Pennsylvania Power & Light not purchased by common stockholders of Electric Bond & Share pursuant to their warrants. Amended plan also provides that, in addition to the $70 cash distribution, holders of the $6 and $5 preferred stocks will receive an instrument evidencing their right to receive such additional amounts, if any, which the commission and the federal court may determine they are entitled to in full satisfaction of their claims. (Release No. 6879-1).

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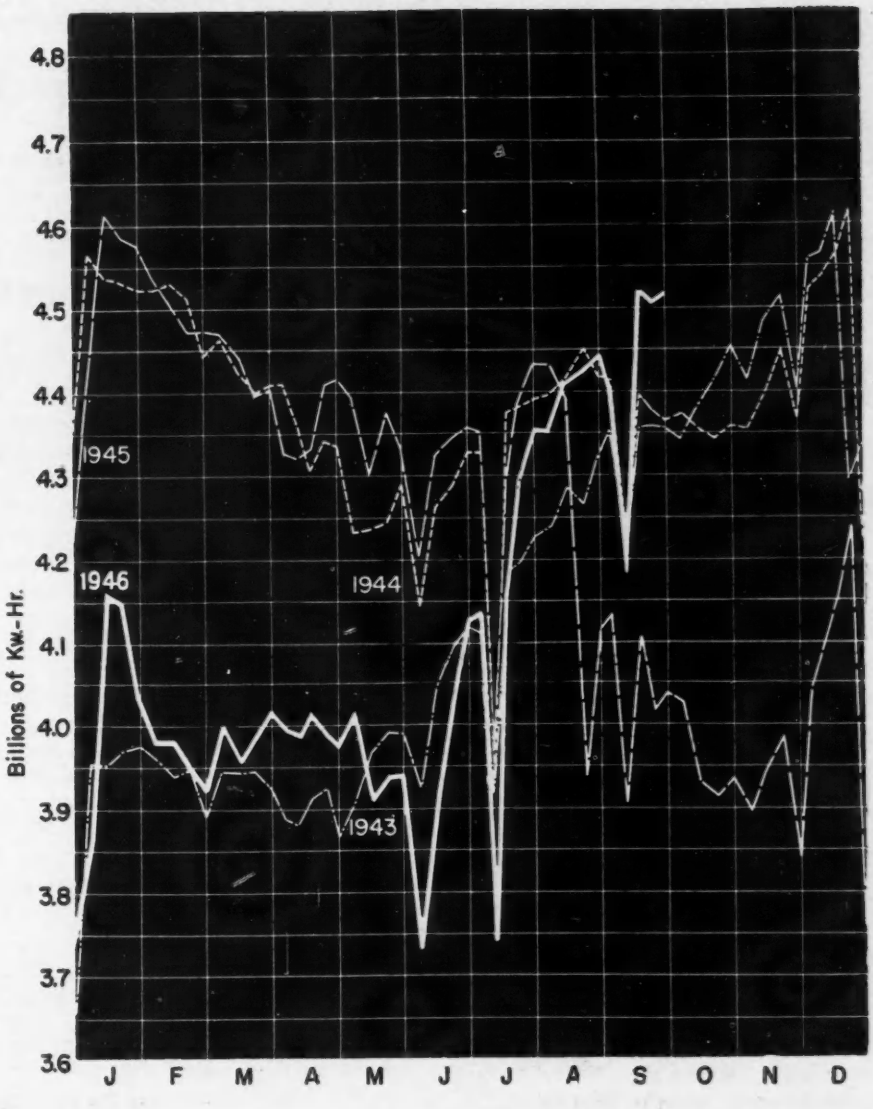
Payment on Arrears Made

Directors of Illinois Power Co. have ordered payment of $4 on each of the company's 483,500 dividend arrears certificates. The payment is to be made November 1 to holders of record October 11. This is the first payment on the certificates, which were issued in $24 face value per unit under the 1937 recapitalization plan in satisfaction of unpaid dividend accumulations on the old preferred stocks.



Electric Output Curve Moves Upward

During the week ended September 28, 1946, the electric output curve moved upward, according to figures released by the Edison Electric Institute.

The amount of electrical energy distributed by the light and power industry during the week amounted to 4,517,874,000 kw.-hr., compared with 4,506,988,000 kw.-hr. during the preceding week and with 4,038,542,000 kw.-hr. during the corresponding week of 1945, that of September 29. The increase for the country as a whole for the week ended September 28 as compared with last year was 11.9 percent.

All of the major geographical regions of the country reported increases over the corresponding week of 1945, but the over-all picture for the country, with its gain of 11.9 percent, compared with an increase of 12.1 percent for the week ended September 21 as compared with the corresponding week of 1945. The largest gain for the week ended September 28 was reported by the Southern States, which reported an increase of 17.3 percent. The Pacific Coast group ran a close second, with an increase of 16.8 percent. The smallest increase was reported by the Rocky Mountain group, 1.2 percent.

Weekly Output, Millions Kw.-Hr.

1946		1945		1944	
Sept. 28	4,518	Sept. 29	4,039	Sept. 30	4,366
Sept. 21	4,507	Sept. 22	4,019	Sept. 23	4,377
Sept. 14	4,521	Sept. 15	4,106	Sept. 16	4,395
Sept. 7	4,184	Sept. 8	3,909	Sept 9	4,228
Aug. 31	4,404	Sept. 1	4,137	Sept. 2	4,415
Aug. 24	4,444	Aug. 25	4,116	Aug. 26	4,418
Aug. 17	4,422	Aug. 18	3,939	Aug. 19	4,451
Aug. 10	4,412	Aug. 11	4,395	Aug. 12	4,415
Aug. 3	4,351	Aug. 4	4,432	Aug. 5	4,399
July 27	4,352	July 28	4,435	July 29	4,391
July 20	4,293	July 21	4,385	July 22	4,381
July 13	4,156	July 14	4,295	July 15	4,377

Percent Change from Previous Year

	Sept. 28	Sept. 21	Sept. 14
New England	+ 9.7	+11.2	+ 7.8
Mid-Atlantic	+ 8.9	+ 7.0	+ 6.7
Central Industrial	+ 9.6	+11.6	+11.8
West Central	+ 9.0	+ 9.6	+ 9.3
Southern States	+17.3	+18.9	+12.4
Rocky Mountain	+ 1.2	+ 3.5	+ 2.3
Pacific Coast	+16.8	+14.6	+10.9
Total United States.	+11.9	+12.1	+10.1

MANUFACTURERS & MARKETS

Foreign Lamp and Tube Makers Equipment Being Surveyed by Eisler Organization

A survey of electronic and electric lamp manufacturing equipment shortages in Europe and the Near East has been inaugurated by the Eisler Engineering Co., Newark, N. J., as a preparation for retooling factories there, it was announced this week by Charles Eisler, head of the firm.

One of the largest manufacturers of electric lamp, radio and television tube, and pharmaceutical glass manufacturing equipment, Eisler has announced an intensive expansion program to meet national and international needs.

Improved production equipment which includes gap lathes, rotary grinders, lapping machines, cam cutters, boring mills, shears and brakes will be added to facilities shortly, Mr. Eisler said.

The transformer division has already expanded its tested facilities into a test department with a custom built test panel of unusual range and versatility. The coil winding department has also added high-speed and heavy-duty winders for large transformer coils.

Mr. Eisler's survey will include a study of the present needs of foreign industry for replacement of machines destroyed during the war. The inventor of incandescent lamp, radio tube and pharmaceutical glass working equipment, Mr. Eisler's machines are used in plants throughout the world.

"Bomb damage, sabotage by workers to halt Nazi production, and the development of improved machines and techniques will necessitate the installation of completely new factory equipment in most cases," Eisler noted. "We have an unusually large backlog of orders which must be filled quickly if we are to facilitate the reconstruction of Europe and strengthen our own economic position."

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Work Resumed at A-C Plant

Following closely on the settlement of the strike at the Pittsburgh works of the Allis-Chalmers Manufacturing Co., employees at the company's Springfield, Ill., plant have voted overwhelmingly to return to work. Terms of the contract included acceptance of the same wage increase of 13½ cents an hour to bring the total increase since V-J day to 18½ cents, as well as the company plan for government supervised strike votes and irrevocable voluntary checkoff of union dues and assessments.

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Cooking Load Income High; Sales Helps Available

The commercial electric cooking and baking load offers utilities an estimated $143,200,000 in revenue per year, to be secured by the addition of 7,164,000 kw. to existing facilities, and which is available at a cost as low as 30 to 40c per dollar of estimated annual revenue in direct selling costs, according to the "Commercial Electric Cooking and Baking Manual," just published by the cooking and baking subcommittee, commercial section, Edison Electric Institute.

High load factor and unity power factor are among the desirable features of the electric cooking load, the manual says. It urges utility commercial representatives to stress the actual total cost of cooking, rather than energy costs, for greater success in this field of promotion.

Actual case histories of utility experience in promoting electric cooking and baking are included in the manual, with detailed statistical data on revenue secured per dollar of E. A. R. selling costs, etc.

A section on basic sales data for use by utility representatives lists the advantages of electric cooking to the restaurant operator, the varied applications of electric cooking equipment, and a list of 18 sales helps that are available to every representative.

Several architects' drawings of suggested kitchen layouts for different types of food service establishments are included.

An extensive appendix provides data on actual operating characteristics of electric kitchens, calculation of potential merchandise and wiring business and wiring data, among other helpful information.

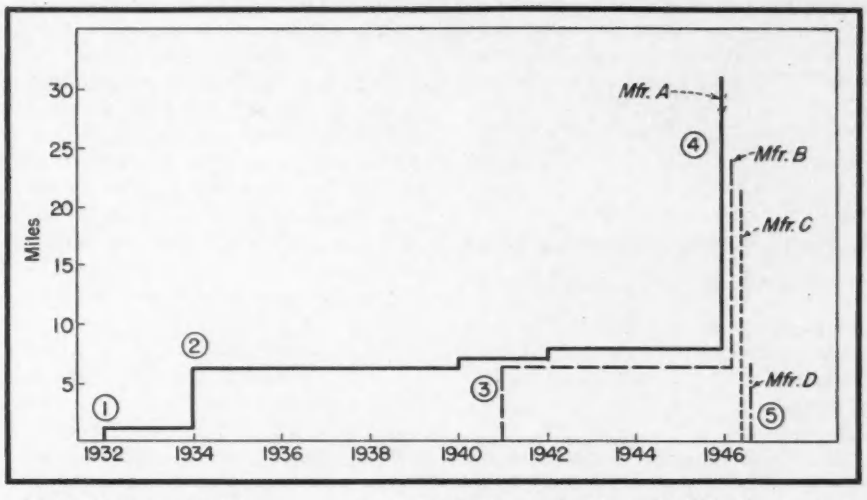
RESOLUTION OF APPRECIATION—For his "substantial aid to the industry, especially during the unprecedently difficult period of post-war reconversion," E. B. Ingraham (left) appliance division chairman of the National Electrical Wholesalers Association, is presented with a "Resolution of Appreciation" by managing director Charles G. Pyle on behalf of the Association's members. Prepared in the form of an illuminated scroll, the resolution refers to Mr. Ingraham's untiring efforts and wise counsel in the formation of the appliance division, which has now become an "important national voice for the wholesale appliance distributive industry"

Upward Trend Shown in Purchase of High-Pressure Cable Systems

The trend toward the use of transmission cable installed in welded steel pipe lines and operating at high oil or gas pressure is shown by records compiled by The Okonite-Callender Co., Inc., Paterson, N. J., who pioneered the early installations of this type of cable. During the first eight months of this year, following an accumulated experience of 14 years' failure-free operation with high-pressure systems, a rapid succession of substantial purchases (total 69 miles) of cable operating at 200 psi. have recently been made by major utility companies.

Fourteen-Year History

Over this 14-year period, 83 percent of the sales have been of the oil-pressure design and 17 percent of the gas. The total sales aggregate 84 miles of which 70 miles are of high oil-pressure and 14 of high gas-pressure. The accompanying chart shows the sales history of high-pressure cable.



TREND in use of high-pressure cable is indicated on the chart. (1) Mfr. A pioneers first experimental high oil-pressure cable at Plymouth Meeting Station and (2) installs first commercial installation at Baltimore. (3) Mfr. B installs first gas-pressure cable. (4) Installation of 5-mile transmission line of high oil-pressure cable at Atlanta initiated a rapid succession of high-pressure cable purchases. (5) A total of 69 miles of high-pressure cables is purchased by various utilities

Manufacturers Announce Plant Expansion Plans

Construction has started on a three-story engineering building containing a gross floor area of 79,000 sq. ft. for the Weston Electrical Instrument Corp. at 614 Frelinghuysen Ave., Newark, N. J.

Expansion of the manufacturing facilities of the International Telephone & Telegraph Corp. into the Canadian field was disclosed recently with the announcement by the Federal Telephone & Radio Corp., I. T. & T.'s domestic manufacturing affiliate, that its newly organized Canadian subsidiary, the Federal Electric Manufacturing Co., Ltd., has acquired a modern manufacturing plant in the Montreal area for the production of telephone, radio and other electrical equipment.

Celanese Corp. of America has begun construction of a new research center which will conduct experiments for its chemical plant at Bishop, Tex. The new research center will cost about $3,000,000 and will have a laboratory with more than 5,000 sq. ft. of floor space.

Monsanto Chemical Co. has announced the $9,550,000 purchase from the War Assets Administration of a government-owned Texas City, Tex., styrene plant which Monsanto built and operated for the government under the war-time synthetic rubber program. The company said the negotiations were part of a program to expand its polystyrene plastic production to a rate of more than 80 million lb. by early 1947.

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Guardian Electric New Pay Plan Reduces Absenteeism

A new pay plan, introduced with the slogan "35 plus 5 equals 42½" and advertised in the want ad section of the September 15 *Chicago Sunday Tribune*, achieved two-way results for the Guardian Electric Co., Chicago. In addition to attracting 152 job applicants, the program apparently caused a 50 percent reduction in absenteeism among workers already on the payroll.

Under the new wage program, the company pays time and one-half for the last five hours of a 40-hour week. On the day after publication of the advertisement, only 6.5 percent of the more than 700 employees were absent, compared with a normal Monday absenteeism of 14.6 percent. During the week 228 employees were absent compared with 451 during the preceding week.

Shortages Endanger Food Preservation Facilities

The nation's food supply, already snarled in pricing and shipping difficulties, black markets and continued foreign demands, may hit still another snag, it was revealed in Chicago last week.

Leaders in the mechanical refrigeration industry reported that food preservation facilities in warehouses, food processing plants and throughout all commercial and marketing channels—even to retail stores—are seriously endangered by the industry's failure to get materials for the production of new equipment or parts for present equipment, some of which is 15 years old or older.

The latest obstacle to the industry's material situation is the new Civilian Production Administration Directive 13, which limits the use of pig iron and malleable iron to bathtubs, soil pipe and a few other products for homes for veterans.

As a result, manufacturers of condensers, valves and fittings and other parts—all of which form the "heart" of mechanical refrigeration equipment of every description—have been forced to slow down or shut down operations, and the industry faces a complete cessa-

tion of production if the situation is not corrected at once.

The new restrictions, which also affect the manufacture of domestic refrigerators, freezers and other home equipment, are the most drastic faced by the industry during the war or since. Appeals of industry officials to government agencies in Washington so far have been unsuccessful, and hundreds of manufacturers, have taken the issue to their senators and congressmen in an effort to gain modification of the CPA ruling.

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Federal Electric Purchases Wurdack Co. of St. Louis

Outright purchase of the Wurdack Co. of St. Louis by the Federal Electric Products Co. of Newark, has been announced by Louis W. Cole, president of Federal Electric

At the same time it was also disclosed that the Cole Products Co. of Long Island City, N. Y., long affiliated with Federal Electric, is being merged into the Federal Electric Products Co.

The Wurdack line of products will be expanded to include many items manufactured by Federal in the East. Plant space in St. Louis will be doubled and considerable new equipment added. The Wurdack company in the future will be known as the William Wurdack division of the Federal Electric Products Co.

Federal now has four major manufacturing plants located in Newark, Long Island City, Hartford and St. Louis, two assembly plants in California and sales offices throughout the country.

Heating, Ventilating Show Reveals Industry Expansion

A tremendous expansion in the manufacture of heating and ventilating equipment following the war is disclosed in connection with the 7th International Heating and Ventilating Exposition in Cleveland, January 27-31 next. So greatly has the industry increased the number of items produced, besides increasing productive capacity, that many of the long established exhibitors will be able to show only token displays for lines that would require many times the amount of space available were their entire lines set out. A good number of newcomers have also entered the scene booking first-time exhibits.

Special requirements, evolved during the war, produced a number of innovations, stimulated invention and brought about considerable redesign of equipment to meet the changing materials situation. Greater outputs of some items were also needed. These advances have been capitalized in reconversion planning and combine to create advances that are in some ways spectacular.

An exhibitor of air-conditioning and industrial refrigerating equipment, besides going more heavily into fans for mechanical draft for power stations and fans for industrial plants, plans to more than double the best pre-war year's output during the next tewlve months. Another exhibitor, specializing in automatic control devices, plans to more than treble pre-war volume. This exhibitor manufactures more than 3.000 kinds of automatic controls.

The exposition management, as well as the individual exhibitor, find the space problem pressing, as the amount of unassigned space available is dwindling, while new applications are still being received. Visitors will be admitted only by invitation and registration and the general public will be definitely excluded.

The exposition, which is held under the auspices of the American Society of Heating and Ventilating Engineers, is under the management of the International Exposition Company. Charles F. Roth is manager and E. K. Stevens, associate manager.

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Electrical Instruments Training Course Prepared

Designed to give in a clear, concise manner a fundamental knowledge of the construction, operation and selection of electrical measuring instruments, an intensive course including sound slide films, a complete pocket size textbook, and an instructor's manual has been prepared by the Westinghouse Electric Corp.

Primarily for use by its own organization, the course has also been made available to educational institutions, engineering societies, and the engineering departments of all organizations that use electrical measuring instruments, at a nominal cost. Distribution will be handled by the industrial relations department.

Subjects covered in films and lessons are: Importance of Electrical Instruments, Permanent Magnet Moving Coil Mechanism, Electro-Dynamometer Mechanism, Stationary Coil and Moving Iron Mechanism. Rotating Vane Mechanism, and Selection and Use of Electrical Instruments.

It is reconmmended that the course be given in six one-hour sessions, with each session covering one lesson. An Instructor's Manual, giving suggested classroom procedures and containing essential reference material, is also provided.

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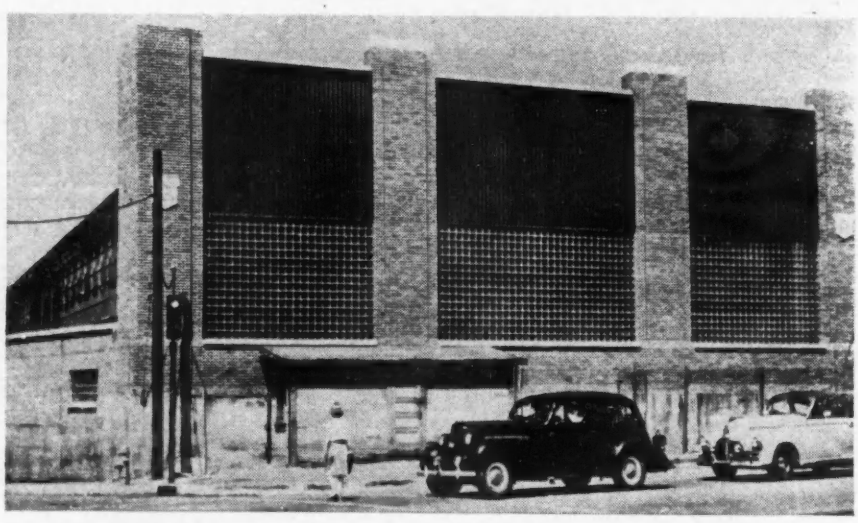
Silicone Oils Speeding Up Molded Mica Parts Output

Faster and improved production of molded mica parts has been reported by the chemical department of General Electric Co. with the utilization of silicone oil as a mold release agent.

Engineers revealed that silicone oil is being used as a lubricant in molding both shellac and Glyptal bonded mica and report that the application results in a freedom from carbon and other decomposition products which adversely



MORE CONDUIT COMING—In order to secure more efficient and greater volume of rigid conduit production, National Electric Products Corp. has recently completed this new addition at the Ambridge, Pa., plant. The latest design of production equipment is now installed

affect the electrical properties of the mica. They also disclosed a marked reduction in rejected pieces caused when parts were broken in being removed from the mold. This feature of the silicone oil plus the fact that its use saves time formerly spent in cleaning gummy decomposition products from the mold has resulted in greater production of the finished mica parts, they said.

The high temperature stability of silicone together with its low surface tension enables the mold operator to apply the silicone oil readily to all sections of the mold while still heated, engineers reported.

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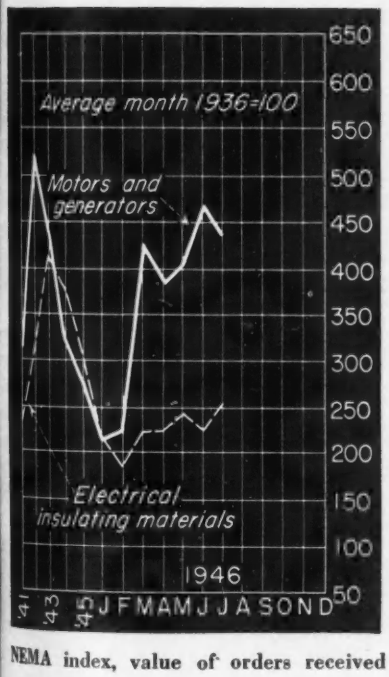
Insulating Materials Orders Rise; Generators Drop

Orders received for motors and generators during the month of July turned downward, according to figures released by the National Electrical Manufacturers Association. The index compiled by NEMA dropped to 432 in July from 465 in June, a decrease of 7 percent. In July, 1945, the index stood at only 235, this year's figure representing a rise of 84 percent.



NEMA index, value of orders received

Electrical insulating materials orders advanced in July, the index rising to 252 from 227 in June, an increase of 11 percent. In July, 1945, the index stood at 294, this year's figure representing a decrease of 14 percent.

The 1942, 1943, 1944 and 1945 monthly indexes include an adjustment for cancellations reported up to December 31, 1945. No adjustment has been made for renegotiation of contracts.

FIELD REPORTS ON BUSINESS

Demand for electrical equipment continues very active. Deliveries are being parcelled out in small lots. Radio sets are being received at a fairly steady rate and the electrical appliance situation is improving throughout the country.

PACIFIC COAST

Entering the last quarter of what has been generally a good year, wholesalers and manufacturers are hoping to round it off nicely with increased appliance business though production is still far from their accumulating sufficient backlogs for strictly holiday business on the pre-war scale. Household irons, for example, are still the scarcest of traffic appliances, though mixers and toasters are arriving in better quantities. Other holiday material, such as Christmas tree lamps and decorations, are in very limited production both as to items and quantities and apparently will all be gone before December.

Much additional appliance demand will come during 1947 from new districts now being reached by new line construction, especially by REA cooperatives in the Northwest states and by Pacific Gas & Electric Co. extensions in northwestern California and the Central Valley. This company plans to complete $160,000,000 of new plants and plant expansions by 1948, the largest being a 132,708-hp. hydroelectric on North Fork of the Mokelumne; a 134,000-hp. steam increase at Hunters Point, San Francisco, and a new 100,500-hp. steam plant near Bakersfield.

School building is a factor in the lighting picture and another increasing source of lighting fixtures sales is what may be called the packaged shopping section whereby a number of progressive merchants in adjacent locations cooperate in store front and illumination modernization.

CHICAGO

The stride taken by construction this year is shown by figures for 192 Illinois cities in the first six-month period. In the 1946 period, the total value of permits was $156,900,000, against $29,200,000 in the 1945 period, a 400 percent gain.

Increasing activity in electrical machinery and apparatus manufacturing in Springfield, Ill., during June served to offset a substantial decline in employment and payrolls in the machinery and machine-tool industries, according to a report just released. Higher wage disbursements were the net result. The same trend showed in the Chicago suburban area and in Elgin.

A total of 1,472 farms and other rural units was given power during the first six months of 1946 by Public Service Co. of Northern Illinois—372 more than in the full year of 1945. This brought to 28,441 the total of farm units served by the company. Another 1,380 farmers have contracted for service, which will probably be provided before the end of the year. When this is completed, 96.6 percent of the 30,883 rural units throughout the firm's territory will have electricity. The six-month period saw construction of 471 miles of new rural power lines, bringing total miles to 7,004. Another 190 are under construction and 325 more will soon be started.

Milwaukee continues to lead all communities in the Seventh Federal Reserve District in the rise in sales of major household appliances, as evidenced by just-released figures for July, 1946, compared with July, 1945. The Milwaukee increase is 966.2 percent, compared with 661.9 percent for Chicago, next closest competitor.

NEW ENGLAND

The demand for electrical equipment continues very active. Deliveries are being parcelled out in small lots, wiring orders in amounts less than $500 worth and small motors in single lots except for textile plant needs, where, according to one distributor, deliveries are a little easier. Production in New England is at a good level; Westinghouse Electric's East Springfield (Mass.) plant has now reached the pre-war rate of about 1,800 domestic cooling units per day, with some of the current production for foreign shipment, chiefly, it is said, for South America. General Electric's aviation division plant at Lynn, Mass., is producing jet engines for the Army Air Corps, and orders that will require more than two years for completion, amounting to many millions of dollars, are now on the books.

A research laboratory, which will be used for conducting experiments in the field of paper products, has been started for the Angier Paper interests at Framingham, Mass. Van Dyk Coffee House, Hartford, Conn., has recently added a 1-kw. fudge warmer; 1.5-kw. waffle iron; three 5-hp. Chrysler air-conditioning compressors, and a 3-hp. circulating fan to its extensive electrical equipment (ELECTRICAL WORLD, July 20, 1946, page 112). During the past fortnight radio sets have been received in Boston at a fairly steady rate and the electrical appliance situation here is improving gradually.

NEW YORK

Movement of equipment in the New York area is still being adversely affected by the trucking strike. Many component parts manufacturers are operating at much lower levels than previous to the strike because of non-delivery of materials and non-delivery of finished equipment. Several state materials inventories are now at the lowest ebb and that early shutdowns are in prospect. In other plants, shipping rooms are crowded with "packaged goods" awaiting delivery.

Incoming new orders are still running ahead of "ability to produce." Manufacturers are anticipating copper, lead, castings, cotton and plastic shortages well into 1947.

Distributors' sales are continuing at a high level but "could easily be doubled for at least a year" if more materials were available. Several distributors are planning for the day when pipelines are filled.

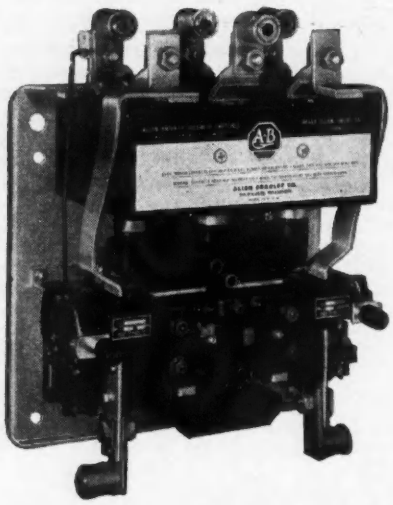
Street lighting is continuing in the news. This past month more than 70 utility systems have ordered electronic equipment for automatic control of highway and street lighting.

NEW EQUIPMENT

Solenoid Starter Offered by Allen-Bradley

A LARGER STARTER with a solenoid switch structure has been developed by Allen-Bradley Co., 1311 South First St., Milwaukee, Wis. The new unit has a maximum horsepower rating of 100 hp., 220 volts, and 200 hp., 440-550-600 volts, and will replace the clapper type starter.

All the features of the company's smaller solenoid starters are incorporated in the new size 5 unit, the company reports. The double break, cadmium silver contacts are totally encased in an arc hood, each pole of the switch having its individual arc chamber. This, the company reports, allows the switches to be closely grouped, without danger of flashover between switches.



By employing the solenoid design, the size of the starter has been reduced when compared with that of the clapper-type which it replaces. Wiring space, however, has been increased. The company reports that currents of at least 10 times the maximum horsepower rating have been interrupted by the unit.

The starter is mounted on a self-insulated metal base plate, which may be mounted on any metal surface without extra insulation. It can be provided with or without an enclosure. The enclosed starter is available in the NEMA type 1 sheet-metal enclosure for general applications, the NEMA type 4 for water-tight and weatherproof installations and the NEMA type 5 for non-hazardous dust areas.

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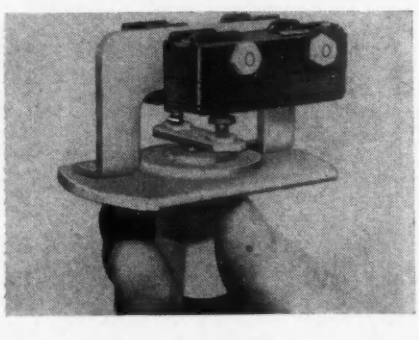
3 New Pressure Control Switches Announced

THREE pressure-actuated switches—the "ID," industrial differential; the "LP," low pressure; and the "SD," special device—are being announced by the Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.

Model "ID," illustrated, may be used wherever two circuits need independent control at equal or different pressures. Switches similar in design can be supplied for use up to 200 psi. One adaptation mentioned is in the control of electrically operated steam heaters where one circuit controls the circulating fan and the other controls the heating element.



Either circuit of this switch can be supplied to operate on pressures from 1 to 17 psi. The pressure differential between "on" and "off" position may be specified anywhere between 1 and 10 psi.

Specifications reported are: maximum current capacity, 10 amp. at 120 v., a.c.; ¼-in. standard female thread; and contacts are enclosed snap action, either both normally open or normally closed or one circuit open and the other closed.

The "LP" model is suitable for controlling low-pressure blower systems and vacuum-filling operations, and for aircraft application such as air speed indication, oil level control, cabin pressure control, and wherever small differential pressures are to be detected or controlled.

Switches can be supplied to operate at 0 to 30 in. of pressure or vacuum, with an actuating differential between 0.3 and 10 in. water pressure, and with a current capacity of 6 to 10 amp. at 120 v., a.c.

Model "SD" can be actuated by either gas or liquid pressures within the same ranges of the "ID," It is suggested as a means of controlling steam boiler pressures, pressure cookers, air systems, ventilating systems and heating elements. Current specifications are 10 amp. at 120 v., a.c., single circuit, either normally open or closed.

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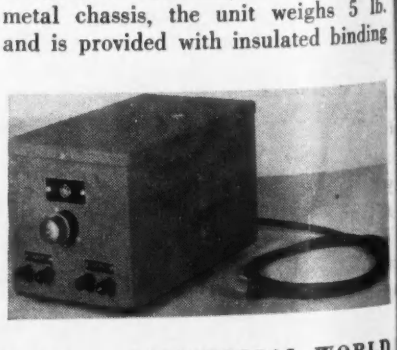
10 Microvolt Readings Possible with New "Autopot"

A PORTABLE self-balancing potentiometer, called an "Autopot," which is an electric device for converting d.c. voltages to measurable currents without appreciably overloading the measured circuit, has been announced by General Electric Co., Schenectady 5, N. Y. Among the services to which the unit may be applied are: telemetering, temperature measurement, analysis of electronic circuits, as a source of constant current, and measurement of unbalance in bridge circuits and the drop across shunts where lead resistance is critical.

D.c. voltages as low as 10 microvolts and up to 1 volt can be measured with any indicating or recording instrument drawing up to 5 milliamperes and having a resistance of 1,500 ohms or less. Use of the unit also extends the range of conventional indicating and recording instruments so that they can be used for high-sensitivity measurement of low d.c. voltages and direct currents.

The "Autopot" is completely self-contained. The 5- x 10- x 7¼-in. case houses the bridge elements, power supply, light source, and light-beam galvanometer. Assembled on a welded metal chassis, the unit weighs 5 lb. and is provided with insulated binding



posts for input and output connections.

At balance, the current drawn by the input circuit is 0.01 microamperes. Output is 5 milliamperes full-scale for any input range and any output-instrument circuit resistance up to 1,500 ohms. Ranges of input voltages are: 100 microvolts d.c. full-scale to 1 volt d.c. full scale, in decade steps obtained by standardized plug-in-type resistors.

The potentiometer balances to plus or minus 1 microvolt; over-all accuracy depends upon the output instrument used. Response time is 1 sec. on the 200-microvolt range, and less than 1 sec. on higher ranges.

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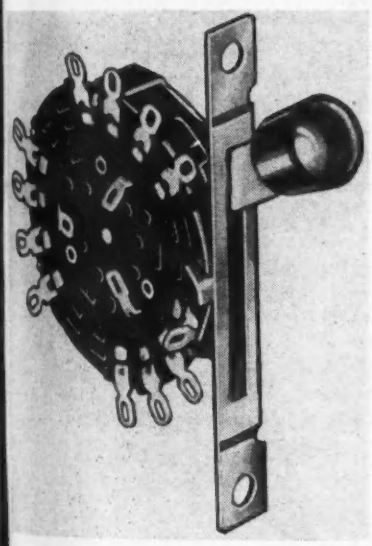
New Lever Action Switches Handle 26 Combinations

A NEW LINE of lever action switches has been announced by P. R. Mallory & Co., Inc., 3029 East Washington St.,



Indianapolis 6, Ind. These new switches, known as the 5000 and 6000 series, accommodate a wide range of applications in industrial fields and test equipment, but are particularly adapted to intercommunication, centralized radio, sound distribution and public address equipment.

The new switch offers a total of 26 circuit combinations, 13 each shorting and positive non-shorting, including two, three and four positions, all with positive indexing at 20 deg. between positions.

The contacts will make and break 120 milliamperes at 110 volts d.c. and 50 milliamperes at 250 volts d.c., both based on resistance load for 10,000 cycles of operation. Contacts will carry 10 amp. without excessive heating. Current-carrying capacity will vary with different load, frequency and voltage conditions.

Meter Measures Electrical Resistivity of Soil

TO MEASURE the electrical resistivity of soils, Associated Research Inc., 231 South Green St., Chicago, Ill., has developed a new meter. It measures ohms total resistance but is calibrated to read units of ohms per cubic centimeter.

The meter, Model 243, is energized by a self-contained power source. The potential is 3 volts, which is obtained from two No. 6 dry cells. Batteries are controlled by push-button switch and are "on" only while readings are being taken. Battery life is given as one year.

Full scale reading is 30,000 ohms per cubic centimeter. Reading is within radius of approximately 12 in. of tip of probe, which can be inserted to any desired level. The probe is of special design and only one is required.

Unit has a webbed strapping harness, is housed in a weather-proof metal case, and has a shipping weight of 19 lb. Unit was designed to determine areas where protection against electrolysis and corrosion are necessary.

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Multi-Wire Connectors Lock; Shield Conductors

A NEW SERIES of multi-wire connectors, which locks closed and utilizes the unbroken shielding on the conductor through to the cable, has been announced by Alden Products Co., 117 North Main St., Brockton 64, Mass.

The two elements of each combination lock together by a large size knurled locking ring which engages slots in the opposite member. When locked, a rubber gasket exerts a reverse pressure on the ring, which, the manufacturer reports, makes the assembly vibration proof as well as providing a water and dust tight connection.

The shielding on the cable is brought inside the metal shell and its pigtail (or a wire soldered to the shield) is brought back through a hole in the shell and soldered, thereby providing strain relief. The cable is protected by a spring with a bell-mouthed ferrule.

Non-interchangeability can be provided, where several disconnects are utilized on piece of equipment, by using different layouts, yet maintaining the same outward appearance.

Connectors are available to accommodate cable from $\frac{1}{16}$ to $\frac{1}{2}$ in. in diameter and in combinations utilizing two to eleven contacts.

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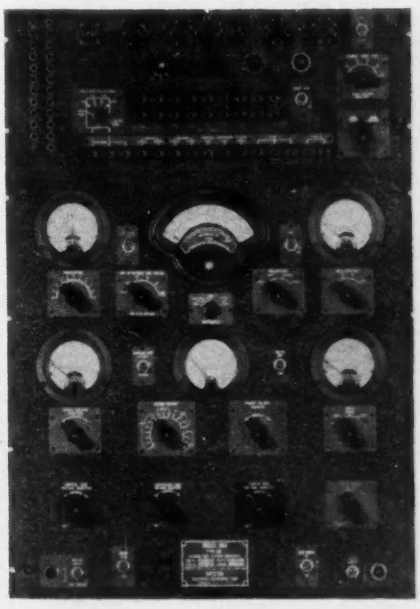
Vacuum Tube Analyzer Tests Tubes "As Used"

A NEW vacuum tube analyzer, which tests tubes as they are used, has been announced by the Weston Electrical Instrument Corp., 617 Frelinghuysen Ave., Newark 5, N. J.

Known as the Model 686, this mutual conductance vacuum tube analyzer contains a filtered a.c. and d.c. potential supply, meters for standardizing each element voltage and current, a grid current microammeter, and a large fan-shaped instrument calibrated in mutual conductance with ranges of 3,000, 6,000 and 15,000 microhms.

The upper portion of the unit contains a separate socket panel with each tube element terminated at a separate pin jack. All power supply and metering circuits terminate in a second set of pin jacks. Patch cords are used to connect any tube for analysis. External circuit components may also be patched in for study purposes.

The analyzer is so designed that all tubes are tested under manufacturer's rated operating conditions or "as used" in the equipment.



Post Hole Digger Utilizes Full Motor Horsepower

A NEW earth boring machine which utilizes the full horsepower of a separate motor to "crowd" the drill bit into the earth has been announced by Hugh B. Williams Machine Shop, 2946 Oak Lane, Dallas 10, Tex. The machine is made in three models—Model PD-1 has a drill depth of 9 ft., weighs 3,600 lb., extends 12 ft. in the air when raised ready for the drilling operation and 7 ft. when lowered for transporting; PD-2, drills 12 ft., weighs 4,100 lb. and is 15 ft. when raised and 8 ft. lowered; and PD-3, drills 20 ft., weighs 4,500 lb., 25 ft. up and 9½ ft. lowered.

The company reports that field tests have indicated effective usage in clay, hard pan, caliche, shale, and soft laminated rock without damage to the machine. Inclined or vertical holes, 8 to 36 in. in diameter may be drilled.

Leveling of the port hole drill on its lateral axis is obtained by special leveling jacks on each side of the machine. These jacks bear directly on the main axle of the truck.

The drill requires a minimum of a 1½-ton dual wheel truck for mounting and can be put into operation in about 20 sec. The raising and lowering assembly is driven by a friction clutch. The operations of drilling, removal and throw-off of borings are controlled by two levers.

The illustrated unit is driven by an International Harvester U-4 power unit. Other optional power unit drives are W-25 Allis-Chalmers, XAHU Waukesha, and D-176 Le Roi.

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New Series of Generators Added By Kato Engineering

A NEW SERIES of alternating current generators, made in both eight and ten poles for direct connection to 720-rpm. and 900-rpm. engines, has been added to products of Kato Engineering Co., Mankato, Minn. The alternators can be furnished either with two bearings or single bearing to permit direct carriage of drive end of alternator on engine-driven shaft. Frame is of steel construction and ball bearings are of the cartridge type.

The 900-rpm. generators are available with direct-connected exciter or top-mounted exciter. The 720-rpm. units are available only with top-mounted V, belt-driven exciter. All exciters are of the shunt-wound type and can be furnished at either 125 or 250 volts d.c.

The stator is built up of No. 26 gage, high-grade core plate steel laminations and the slots and coils are heavily insulted. Coils are form wound and each is separated by a layer of varnished cambric cloth.

Stators and rotors are preheated and dipped and baked in a high-grade electrical insulating varnish that fills interstices. Amortisseur windings facilitate parallel operation of two or more units. Generators are available in 2-wire and 3-wire, single-phase, and 3- and 4-wire, 3-phase, for voltage combinations, such as 110-220 volts for single-phase and 208-120 volts, 3-phase; also 3-phase, 440 volts.

Outlet box is located on side of alternator. Mounting feet can be located to suit associated prime mover base design. Drive shaft is either of stub drive or long extension for pulley. Collector rings are of special grade cast iron and moulded mounting. Slip ring brush holders are furnished for dual brushes.

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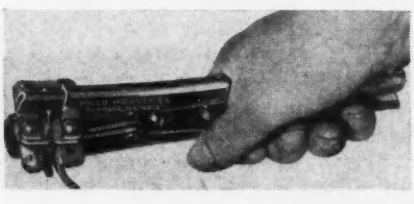
Wire Stripper Handles Solid and Stranded Wire

A NEW MODEL, No. A-02, wire stripper has been added to Holub Industries, Inc., Sycamore, Ill., line of tools, the company reports. The new model is designed for use on Nos. 10, 12, 14, 16, 18, 20 and 22, solid or stranded.



The stripper clamps on the wire similar to a pair of pliers. It clamps the wire, cuts the insulation and strips it in a single operation, the company reports. The lever or automatic feature is reported to prevent the jamming of wires and strands. The tool is pocket size and has renewable blades.

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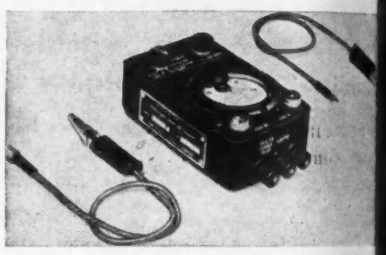
Pocket Size Electrical Tester Checks Circuit Conditions

A NEW pocket size electrical tester for checking voltage, current, resistance



and circuit continuity has been announced by Airquipment Co., 2820 Ontario St., Burkbank, Calif.

The new instrument provides a d.c. voltmeter; a d. c. ammeter; an ohmmeter with 100 ohms full scale, 5 ohm center scale; a continuity test light, 3-volt internal battery; and a 28-volt light for hunting "hot" circuits.

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Eight Insulating Varnishes Introduced by Acme

EIGHT INSULATING varnishes, which are all chemically resistant to acids and alkalis, and to transformer and lubricating oils, are being introduced by Acme Wire Co., 1255 Dixwell St., New Haven, Conn. All varnishes have baking schedule of from 1 to 12 hours at 220 to 275 deg. F., depending upon the application. All are thermosetting with the exception of No. 500, which is oxidizing. All have a reported dielectric strength, dry, of 1,800 (plus) volts per mil with the exception of No. 500 which is given as 1,200.

Other general characteristics reported are: No. 145, clear, 45 percent solids and build-up of 0.5 mils; No. 145, clear, 45 percent solids, and 3.5 mil build-up; No. 160, clear, 60 percent solids, 2.0 mil build-up; No. 1601, clear, 60 percent solids, 10.0 mil build-up; No. 175, clear, 75 percent solids, 7.0 mil build-up; No. 245, black, 45 percent solids, 5.0 mil build-up; No. 260, black, 60 percent solids, 7.5 mil build-up; and No. 500, clear, 45 percent solids, and 2.0 mil build-up.